

# AIMING HIGHER WITH BIOFORE

ANNUAL REPORT 2016

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## Governance

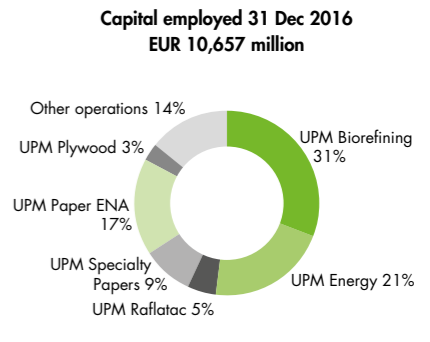
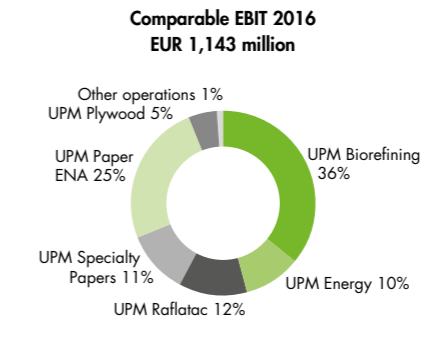
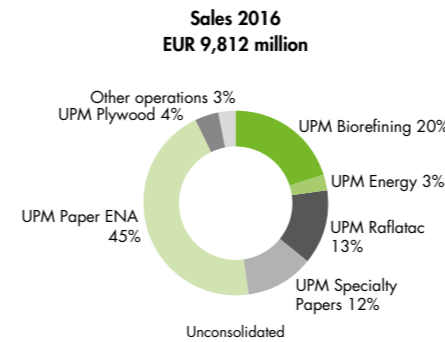
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UPM integrates bio and forest industries and builds a sustainable future across six business areas. Our products are made of renewable raw materials and are recyclable.



**UPM BIOREFINING**

UPM Biorefining consists of pulp, timber and biofuels businesses. UPM Pulp offers versatile range of sustainably produced pulp grades suitable for a wide range of end-uses such as tissue, specialty papers, graphic papers and board. UPM Timber offers certified sawn timber for construction and furniture, for example. UPM Biofuels produces wood-based renewable diesel that is suitable for all diesel engines.

**UPM ENERGY**

UPM Energy creates value through cost competitive, low-emission electricity generation and through physical electricity and financial trading. UPM Energy is an active shareholder in major Finnish electricity companies. UPM's power generation capacity consists of hydropower, nuclear power and condensing power.

**UPM RAFLATAC**

UPM Raflatac manufactures self-adhesive label materials for product and information labelling for label printers and brand owners in the food, personal care, pharmaceutical and retail segments, for example.

**UPM SPECIALTY PAPERS**

UPM Specialty Papers serves growing global markets with label papers and release liners, office papers in Asia and flexible packaging in Europe. With extensive distribution network and strong brands, UPM Specialty Papers is the market leader in labelling materials globally and in office paper in Asia Pacific region.

**UPM PAPER ENA**

UPM Paper ENA is the world's leading producer of graphic papers, offering an extensive product range for advertising, magazine and newspaper publishing as well as home and office uses. UPM Paper ENA has 15 efficient paper mills in Europe and the United States as well as a global sales network with excellent service.

**UPM PLYWOOD**

UPM Plywood offers plywood and veneer products, mainly for construction, vehicle flooring and LNG shipbuilding as well as other manufacturing industries. With production facilities in Finland, Estonia and Russia, UPM Plywood is the leading supplier in demanding end-use segments.

**OTHER OPERATIONS**

Wood Sourcing and Forestry secures competitive wood and biomass for UPM businesses and manages UPM-owned and privately owned forests in North Europe. In addition, UPM offers a wide range of forestry services to forest owners and forest investors. UPM Biocomposites and UPM Biochemicals business units are also included in Other operations.

ANNUAL MARKET GROWTH

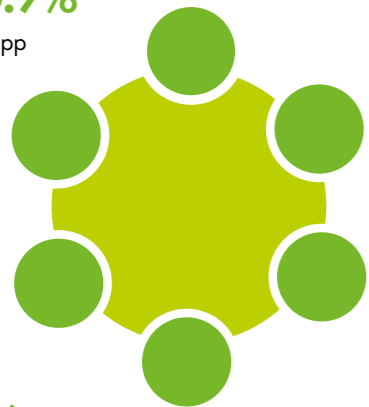


## Financial performance

### Top performance

Comparable EBIT  
EUR **1,143m**  
+25%

Comparable ROE  
**10.9%**  
+1.4pp



**5/6**  
business areas  
achieved their  
financial targets

Read more:  
[www.upm.com/investors](http://www.upm.com/investors)

### Strong cash flow

Operating cash flow  
EUR **1,686m**  
+42%

### Attractive dividend

Dividend (proposal)  
EUR **507m**  
+27%

### Industry-leading balance sheet

Net debt/EBITDA  
**0.73x**

Net debt reduction  
EUR 969m, -46%

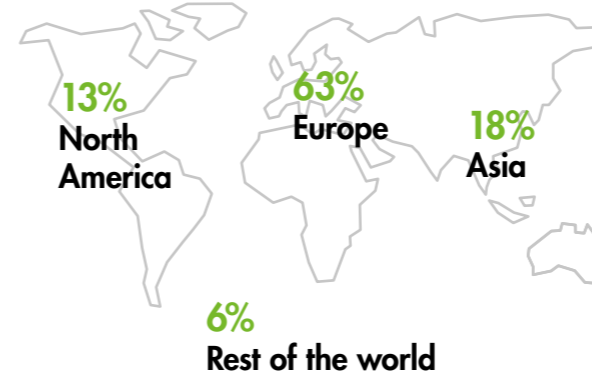
### Focused investments

Capital expenditure  
EUR 325m

Attractive returns  
reached 80% of  
the EUR 200m  
EBITDA target set  
for the first wave  
of growth projects

## Global businesses – local presence

UPM's sales by market 2016  
**EUR 9,812 million**



**54**  
production plants  
in **12** countries



**19,300**  
employees  
in **45** countries

**12,000**  
customers  
in **120** countries

**85,000**  
shareholders  
in **40** countries

**55,000**  
suppliers  
in **70** countries

## Responsibility performance

% of active employees completed  
Code of Conduct training **97%**

**+6pp**

The UPM Code of Conduct lays the foundation for responsible business operations and continuous improvement.

Employee engagement **69%**

**+3pp**

Engaged, high-performing people implement the Biofore strategy and drive short- and long-term success.

LTA frequency **3.7**

**-6%**

Ensuring a safe working environment and safeguarding for employees and everyone working for UPM.

Share of certified wood **84%**

**+0pp**

Forest certification is an excellent tool for promoting sustainable forestry.

Supplier Code qualified supplier spend **80%**

**+1pp**

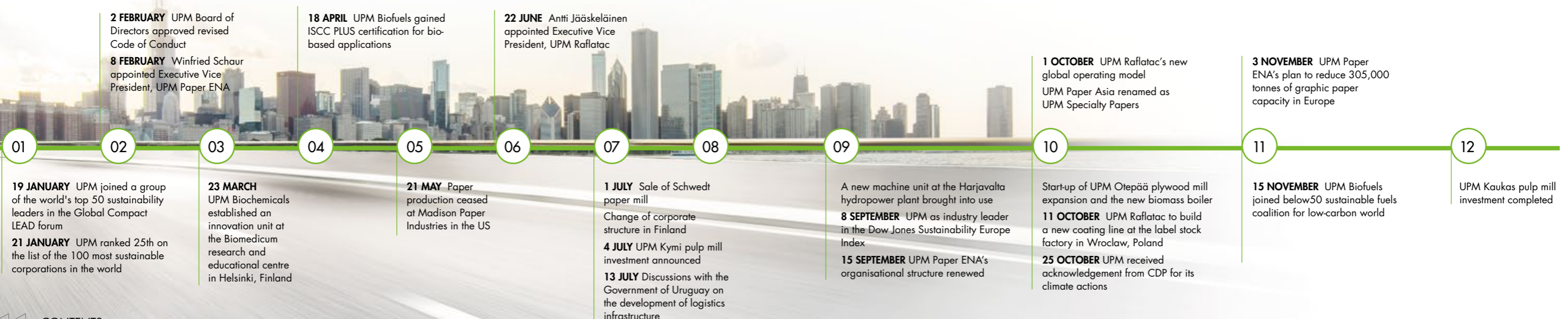
Transparent supplier requirements form the basis of responsible sourcing throughout the entire supply chain.

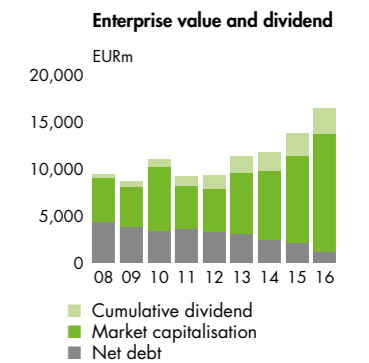
Share of ecolabelled products **69%**

**-1pp**

Ecolabels help customers and consumers to make responsible choices and promote transparency.

## EVENTS IN 2016





## Shareholder value at the core

## 2016 was a record-strong year for UPM

2016 demonstrated the results of our transformation and set the stage for our future. It is fair to say that the foundations for our success were laid a decade ago when UPM stated that the graphic paper markets had permanently changed and that we needed to find a new focus and new ways of working to be competitive.

In 2008, we started to turn pulp and energy into market-driven businesses, and in 2009 we introduced UPM as the future-oriented Biofore Company with an increasing focus on innovation.

In 2013, we changed our business structure to ensure agile and market-driven operations. At the same time, we further sharpened our capital allocation strategy. With this model we have been able to ensure top-performing businesses, strong cash flow, industry-leading balance sheet and good returns from our targeted growth investments.

Through these steps, we have achieved something that we set out to do – create a new kind of UPM. Today's UPM is earnings- and growth-oriented, capable and financially strong, and now we have the opportunity to seek new horizons and aim higher.

### 2016 making way for future growth

During the year, our comparable EBIT increased by 25% and our operating cash flow was record strong at EUR 1,686 million. Our net debt was EUR 969 million lower than a year ago, a reduction of 46%, reaching an industry-leading level.

We grew with our customers in many markets and our growth projects contributed significantly to our earnings. The first wave of pulp investments was very successful and the UPM Lappeenranta Biorefinery had a solid year. The ramp-up of the specialty paper machine at UPM Changshu proceeded as planned. The UPM Otepää plywood mill and UPM Kaukas pulp mill expansions started successfully towards the end of the year.

Further investments are ongoing ensuring future growth. Construction of the second UPM Kymi pulp mill expansion and investment in the

UPM Raflatac factory in Poland are in full swing. Our negotiations with the Government of Uruguay on the prerequisites for long-term industrial development in the country have progressed in positive spirit and are continuing. We also continue to study new opportunities in biofuels and biochemicals.

At the same time, our continuous improvement programmes delivered results in terms of significant savings in variable and fixed costs. The restructuring of UPM's graphic paper business continued in order to adjust capacity to profitable demand. This was particularly reflected in the form of a strong earnings development at UPM Paper ENA.

All this is a significant achievement in a complex and competitive environment and I want to take this opportunity to thank all our business partners, employees and stakeholders for their engagement and co-operation, which made 2016 a success.

### Responsibility is good business

We believe that customers, investors and other stakeholders value responsible operations that keep risks under control and add to our business opportunities, increasing the company's value.

The revision and launch of our Code of Conduct was a group-wide effort during the year. The Code now better reflects our current operating environment. As many as 97% of UPMers completed the training for the new Code.

We were also able to make good progress in 25 of our 34 measurable responsibility targets for 2030. Supplier responsibility was one of the key focus areas in 2016.

The company received recognitions from several third parties. To name but a few, UPM was listed in the Dow Jones Sustainability Index Europe and participated in the United Nations Global Compact LEAD forum of the 50 most advanced companies in terms of sustainability across geographic regions and industry sectors.

### Shareholder value at the core

Creating shareholder value is at the core of our strategy and we believe that this also benefits our other stakeholders in the long term.

Our transformation and the continued improvement in terms of financial and responsibility performance were reflected in positive share price performance. Our share price increased by 35% during the year.

UPM's Board of Directors proposed a dividend of EUR 0.95 per share, which is 27% higher than in the previous year. The proposal reflects confidence in UPM's future.

### Looking forward

UPM has a versatile business portfolio, good geographic spread and five growing business areas. The versatile use of forest biomass and focus on competitiveness and innovation will continue to advance our Biofore strategy.

We will invest in projects with attractive and sustainable returns.

We will also continue measures to manage our costs.

Our new long-term financial targets reflect our increased ambition for business performance. They are credible and sustainable in the long term, over business and investment cycles.

We look confidently to the future. Our competitive position and market demand enable us to expand our growth businesses further and aim higher with our long-term earnings.

Jussi Pesonen  
President and CEO

# Transformation

Over the past years, UPM has been transforming its business model, business portfolio and business performance. The change process started in 2008, and 2016 showed many of the benefits achieved. UPM's transformation continues.

## Business model

### Six separate business areas

UPM has changed its business model from a vertically integrated forest industry model into a company with six separate business areas. The business areas are competitive, with strong market positions. Five of them are operating on healthily growing markets.

The business model change has yielded benefits:

- 1. Transparency and accountability** – commercial strategies, benchmarking, target setting, incentives
- 2. Cost competitiveness** – agility, improved efficiency, optimised sourcing
- 3. Growth** – focused investments with attractive returns and clear competitive advantage

### Capturing corporate benefits

UPM group aims to add value to its separate businesses and thereby to its stakeholders with:

- Competitive and responsible wood sourcing, forestry and plantation operations
- Value adding, efficient and responsible global functions, compliance
- Continuous improvement (Smart) programmes
- Global platform to build on
- Disciplined capital allocation

### Decision making on the right level

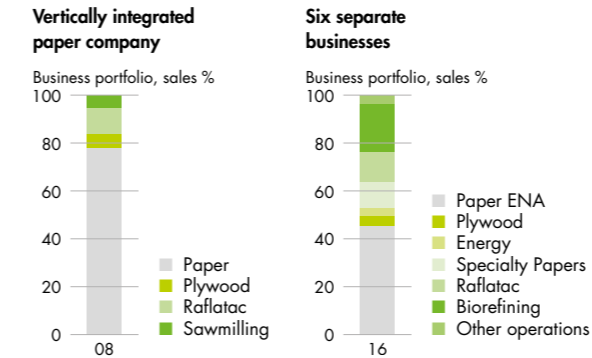
Each business area is responsible for executing its own strategy and achieving targets. Group direction and support from global functions enable the businesses to capture benefits from UPM's brand, scale and integration, while navigating the complex operating environment. Capital allocation decisions take place on the group level.

### CLEAR ROLES AND RESPONSIBILITIES



## Transforming the business portfolio

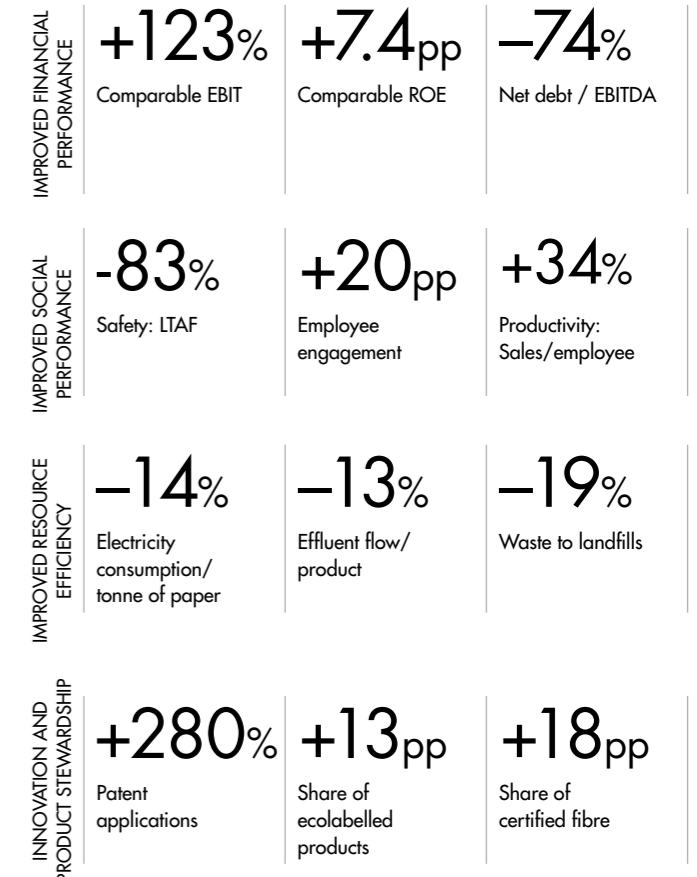
UPM's top-line has been nearly constant at EUR 10 billion over recent years. However, sales in the graphic paper business UPM Paper ENA have decreased, while the five other business areas have grown significantly through focused investments.



## Transforming performance

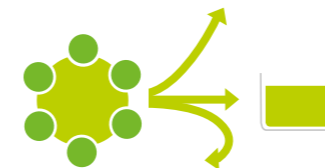
UPM has achieved a clear improvement in its financial performance. Profitability has improved, shareholder returns have increased and the balance sheet has strengthened. At the same time, social and environmental performance has also improved. Read more on long-term financial and responsibility targets on pages 17-19.

### 2016 COMPARED WITH 2008

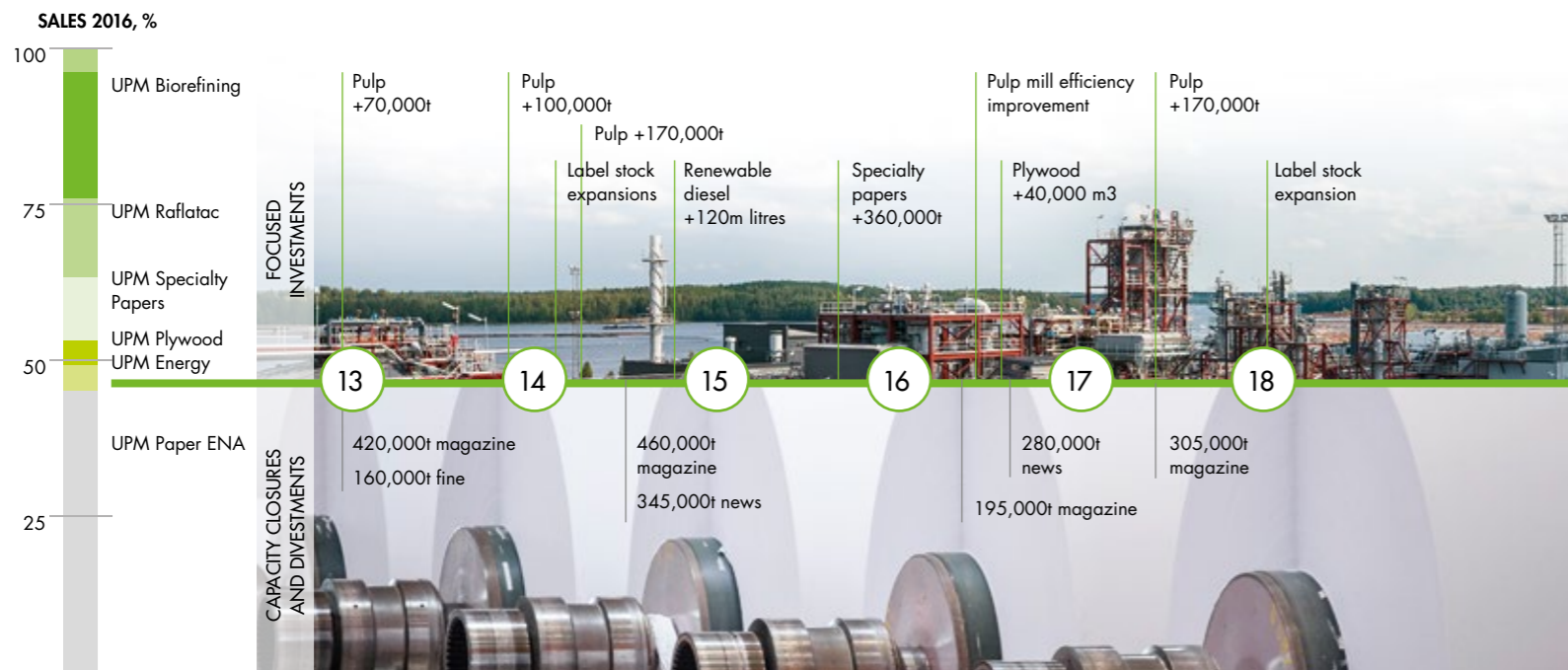


## Disciplined capital allocation

- UPM aims to pay an attractive dividend
- UPM aims to maintain a strong balance sheet to mitigate risks and enable strategic opportunities to be captured
- UPM invests in projects with attractive and sustainable returns, supported by clear competitive advantage
- In UPM Paper ENA, UPM aims for strong cash flow and releasing capital

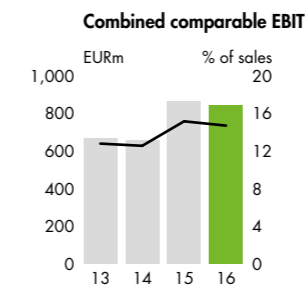


## INCREASING SHARE OF BUSINESSES WITH STRONG LONG-TERM FUNDAMENTALS FOR PROFITABILITY AND GROWTH



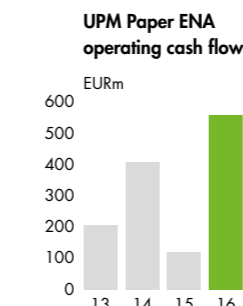
### SUSTAINABLE EARNINGS GROWTH

- UPM Biorefining
- UPM Raflatac
- UPM Specialty Papers
- UPM Plywood
- UPM Energy



### MAINTAIN STRONG CASH FLOW

- UPM Paper ENA



### 5-year average delivery growth (CAGR)

**3-4%**  
excluding UPM Energy

**New business: Biofuels**

### 4-year average annual operating cash flow

EUR **321m**

Read more: UPM's strategic focus areas p. 10

**UPM's strategic focus areas**

UPM's Biofore strategy includes continuous improvement programmes and short-term actions to drive performance; mid-term growth projects as well as mid- to long-term development work to create new, high value-added growth. UPM develops its business portfolio in order to increase the long-term shareholder value.



1

**PERFORMANCE****Continuous improvement in performance**

UPM is committed to continuous improvement in its financial, social and environmental performance. Each business area targets top relative performance in their respective markets.

- UPM has group-wide continuous improvement programmes for reducing variable costs, optimising maintenance and site operations as well as releasing working capital
- Similarly, UPM has continuous improvement programmes for the health and safety of employees and contractors and environmental performance
- The programmes continued to yield strong results in 2016: variable and fixed costs decreased significantly. Lost-time accident frequency continued to decrease, and resource efficiency continued to improve. The work will continue in 2017 and beyond
- UPM aims for efficient use of its assets. In UPM Paper ENA, this also means adjusting production capacity according to customer demand
- UPM sees good governance, industry-leading environmental performance, responsible sourcing and a safe working environment as important sources of competitive advantage

2

**GROWTH****Sustainable returns with focused growth projects**

UPM aims to capture growth opportunities in its business portfolio. The company invests in projects with attractive and sustainable returns, supported by clear competitive advantage.

- Projects already contributing: EUR 680 million investments, with an EBITDA target of EUR 200 million. In 2016, UPM achieved 80% run-rate of the target.
- UPM Pietarsaari, UPM Fray Bentos and UPM Kymi pulp mill expansions
  - UPM Lappeenranta renewable diesel biorefinery
  - UPM Raflatac label stock factory expansions in Asia Pacific region and Poland
  - UPM Changshu specialty paper machine

Projects under construction or at the beginning of ramp up: EUR 225 million investments.

- UPM Otepää plywood mill expansion
- UPM Kaukas and UPM Kymi (second investment) pulp mill expansions
- UPM Raflatac label stock factory expansion in Poland (second investment)

In Uruguay, UPM started discussions with the Government of Uruguay regarding the development of logistics infrastructure in the country. Rail-road and road connections are a critical challenge for establishing a large scale industrial operation in the inland and connecting it to a deep sea port.

3

**PORTFOLIO****Business portfolio development and value creation**

UPM aims to increase long-term shareholder value by increasing the value of each business and by developing the business portfolio, organically or potentially through mergers and acquisitions. UPM's responsible operations and value chain lay the foundation for identifying opportunities and avoiding and mitigating potential risks.

Developing each business

- Driving profitability, growth and cash flow
- Commercial strategies, focused growth investments, continuous improvement programmes

Developing the business portfolio

- Increasing the share of businesses with strong long-term fundamentals for profitability and growth
- Businesses with a sustainable competitive advantage
- Growth investments, synergistic M&A

Portfolio changes are possible if it would be the best way to increase long-term shareholder value

Ability to take action: strong balance sheet mitigates risks and presents strategic opportunities

4

**INNOVATION****New sources for sustainable growth and competitiveness**

UPM is developing new businesses based on its extensive know-how and strong position in the forest biomass sourcing and processing value chain. Ecodesign represents business opportunities with large target markets and high added value.

BIOFUELS

- Advanced renewable diesel suitable for all diesel engines and renewable naphtha that can be used as a gasoline component

BIOCOMPOSITES

- Renewable materials to replace oil-based materials e.g. in injection moulding

BIOCHEMICALS

- Sustainable and competitive wood-based biochemicals with the focus on chemical building blocks, lignin products, biofibrils and biomedical products

Product, service and business model development in the current businesses is also an important source of competitive advantage and growth. All UPM businesses aim to increase the value added for customers through product and service development.

# Performance improvement and transformation continued in 2016

- 1 **PERFORMANCE**
- 2 **GROWTH**
- 3 **PORTFOLIO**
- 4 **INNOVATION**

BUSINESS AREA	STRATEGIC TARGETS	ACTIONS IN 2016	ACTIONS PLANNED FOR 2017 *)
<b>UPM BIOREFINING</b>	<p>Grow as a responsible and cost competitive pulp producer providing the most versatile pulp product offering</p> <p>Provide unique wood-based advanced biofuels, achieve top performance and evaluate opportunities for scaling up biofuels business</p> <p>Enhance profitability through efficient use of wood supply, integrated full-production at sawmills and sharpened commercial strategy</p>	<p>Investment completed at UPM Kaukas pulp mill 2</p> <p>UPM Kymi pulp mill investment decision, discussions with the Government of Uruguay started 2</p> <p>Developed forest plantations in Uruguay 1 3</p> <p>Production ramp-up continued at UPM Lappeenranta Biorefinery, evaluation of scaling up the biofuels business started 2</p> <p>Measures to improve production efficiency at sawmills 1</p> <p>Reduction in variable costs 1</p>	<p>Capture benefits of pulp expansions 2</p> <p>Complete UPM Kymi pulp mill investment 2</p> <p>Continue discussions with the Government of Uruguay 2 3</p> <p>Further optimisation of the UPM Lappeenranta Biorefinery, continue evaluate growth opportunities in biofuels 1 2</p> <p>Continuous cost efficiency improvement 1</p>
<b>UPM ENERGY</b>	<p>Create value in electricity generation and physical and financial trading</p> <p>Profitable growth on the Nordic electricity market with CO<sub>2</sub> emission-free generation</p>	<p>Start-up of new turbine and continued refurbishment of existing two turbines at Harjavalta hydropower plant 2</p> <p>Continued OL3 construction 2</p>	<p>Complete refurbishment of Harjavalta hydropower plant 2</p> <p>Continue OL3 construction 2</p>
<b>UPM RAFLATAC</b>	<p>Profitable organic growth, potentially complemented with acquisitions</p> <p>Widen product portfolio especially in high value-added films and special label products</p> <p>Expand customer reach through increased distribution and sales &amp; service coverage</p>	<p>Improved cost and capital efficiency 1</p> <p>Strengthened product portfolio in films and special products 2 4</p> <p>Improved sales capabilities and logistics solutions 2</p>	<p>Construction of the factory expansion in Poland 2 1</p> <p>Capture growth opportunities and develop product portfolio 2 4</p> <p>Expand distribution coverage in attractive markets 2</p> <p>Continuous cost efficiency improvement 1</p>
<b>UPM SPECIALTY PAPERS</b>	<p>Profitable growth in labelling materials globally and in high quality office papers in Asia</p> <p>Widen product offering in specialities and through new product development, seek opportunities in existing and new end uses</p>	<p>Ramp-up of the new production line at UPM Changshu, China 2</p> <p>Reduction in variable costs 1</p>	<p>Continue optimisation of the third production line at UPM Changshu, China 1 2</p> <p>Develop more value added specialty products segments 2 4</p> <p>Continuous cost efficiency improvement 1</p>
<b>UPM PAPER ENA</b>	<p>Maximise cash flow through differentiated commercial strategies and a disciplined performance management</p> <p>Make use of optimisation opportunities in the extensive low-cost operations</p>	<p>Continued systematic performance management 1</p> <p>Closure of Madison Paper Industries and sale of Schwedt 1 3</p> <p>Reduction in variable and fixed costs 1</p> <p>Plan to close two paper machines in Germany and Austria 1</p>	<p>Strengthen customer relationships 1</p> <p>Taking opportunities in certain end uses and segments 2</p> <p>Continuous cost efficiency improvement 1</p> <p>Closure of two paper machines in Germany and Austria 1</p>
<b>UPM PLYWOOD</b>	<p>Profitable growth through superior customer experience and operational excellence</p> <p>Strengthen market position in selected businesses by increasing value and service offering</p>	<p>Increased deliveries to demanding end-use segments 2</p> <p>Investment completed at UPM Otepää mill in Estonia 2</p> <p>Competitiveness improvement programme at the Finnish birch plywood mills continued 1</p>	<p>Production ramp-up at UPM Otepää mill in Estonia 2</p> <p>Continuous process efficiency improvement programmes 1</p> <p>Strengthening the supply chain service models 1</p>
<b>WOOD SOURCING AND FORESTRY</b>	<p>Secure competitive wood</p>	<p>Sold 63,000 hectares of forest land in Finland 3</p> <p>Reduction in wood costs 1</p>	<p>Continue forest land sales 3</p> <p>Continuous cost efficiency improvement 1</p>
<b>BUSINESS PORTFOLIO DEVELOPMENT AND VALUE CREATION</b>	<p>Grow with synergistic acquisitions</p> <p>Simplify with best value realisation for UPM</p>	<p>Studied M&amp;A opportunities, no significant transactions materialised 3</p>	<p>Continue to look for value enhancing M&amp;A opportunities 3</p>
<b>NEW BUSINESS DEVELOPMENT</b>	<p>UPM Biocomposites: business creation and continued growth</p> <p>UPM Biochemicals: further application development and piloting</p> <p>Commercialise technology and IPR innovations</p>	<p>Industrial concept development proceeded in biochemicals. An innovation unit was established at the Biomedicum research and educational centre 4</p> <p>Active management of patent portfolio, attractive partnerships with start-up companies enhanced 3 4</p>	<p>Continue to expand UPM ProFi product portfolio 4</p> <p>Continue to commercialise UPM Formi 4</p> <p>Continue to develop biochemicals towards commercial phase 4</p> <p>Continue technology and IPR commercialisation, search collaboration opportunities in bioeconomy/circular economy 4</p>
<b>RESPONSIBILITY</b>	<p>Legal compliance; responsible and ethical practices</p> <p>Mitigate risks and capture opportunities</p> <p>Enhance competitiveness</p> <p>Continuous improvement</p>	<p>UPM Code of Conduct renewed 1</p> <p>New 2030 responsibility targets established 1</p> <p>Resource efficiency and work safety improved 1</p> <p>Responsible sourcing management strengthened 1</p>	<p>Supplier and Third Party Code implementation and training 1</p> <p>Continue internal human right assessment 1</p> <p>Resource efficiency and work safety further improved 1</p> <p>Proceed with selected key responsibility projects such as the China More with Biofore (p. 38) 1 4</p>

\*) not a complete list





# Responsibility is good business

Corporate responsibility is an integral part of all our operations and seen as a source of competitive advantage. UPM is strongly committed to continuous improvement in economic, social and environmental performance.

UPM promotes responsible practices throughout the value chain and is active in finding sustainable solutions in co-operation with its customers, suppliers and partners. Creating value for society both as a company and through our products is an essential part of the Biofore strategy.

UPM follows local laws and regulations. The company respects international human rights agreements and agreements concerning labour rights, including the UN Declaration of Human Rights, the ILO Declaration on Fundamental Principles and Rights at Work, and the OECD Guidelines for Multinational Enterprises. Our operations are also guided by our own basic principles: e.g. we do not use wood or fibre from tropical rainforests or produce or use elemental chlorine-bleached pulp.

The company is also one of the participants in the UN Global Compact initiative whose ten universal principles are derived from international agreements in the areas of human rights, labour standards, the environment and anti-corruption. In 2016, UPM joined the UN Global Compact LEAD forum as the first representative of the forest industry and the first Finnish participant.

UPM promotes the Sustainable Development Goals (SDG) of the 2030 Agenda for Sustainable Development published by the UN.

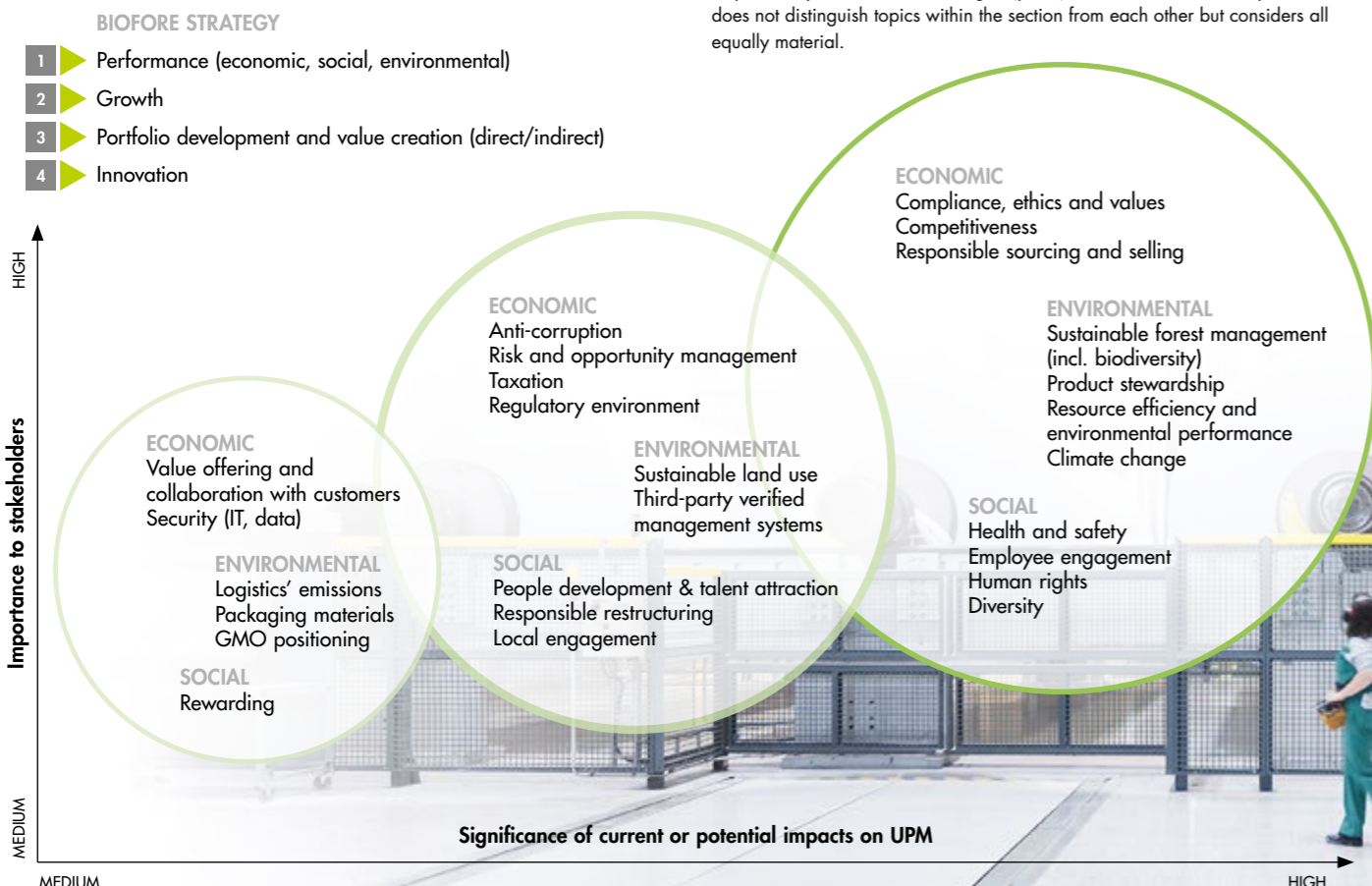
Examples:

- Goal 3 (Good Health and Wellbeing): UPM's management and safety practices
- Goal 13 (Climate Action): wood-based renewable diesel UPM BioVerno. The UN Global Compact LEAD forum has made UPM BioVerno an example case for this goal.
- Goal 15 (Life on Land): wood-based products and the company's global biodiversity programme, which has been part of its sustainable forest management for over 20 years.

In addition to participating in global projects, UPM also works with several local expert organisations in order to promote the SDGs.

The materiality analysis (below) of the company's responsibility issues covers topics that directly or indirectly influence the ability to create, maintain or acquire economic, environmental or social value for UPM, its stakeholders and society. Analysis is performed annually, based on follow-up of interests and concerns of different stakeholder groups, including communities, employees, NGOs, customers, suppliers, investors and media. For example, all the customer questions and stakeholder concerns received during the year are taken into consideration. Specific external stakeholder interviews for materiality purposes are conducted every second year by independent third party. Most material economic, environmental and social responsibility topics identified in this process are presented on the right. UPM's responsibility focus areas and targets (p. 18) reflect these material aspects. UPM does not distinguish topics within the section from each other but considers all equally material.

## UPM's materiality analysis 2016



2030 TARGETS



97%

of UPM active employees completed the Code of Conduct training (continuous target)

## Code of Conduct to be made visible in everyday operations

The company's Biofore strategy and the revised UPM Code of Conduct, approved by the Board in February 2016, lay the foundation for responsible business operations and continuous improvement.

The UPM Code of Conduct covers good business conduct, human rights, occupational safety and environmental practices. During 2016, discussions concerning the UPM Code of Conduct took place throughout the organisation and almost all employees attended a mandatory UPM Code of Conduct training. An assessment of the detailed policies, rules and guidelines that complement the UPM Code of Conduct is currently under way.

The revision of the UPM Code of Conduct resulted, for example, to an update of UPM Supplier Code. The extended content of the UPM Supplier and Third Party Code complies with the UPM Code of Conduct and covers suppliers as well as agents and joint venture partners. The practical implementation of the Supplier and Third Party Code will begin in 2017.

### Managing corporate responsibility

The Board of Directors, assisted by the Board's Audit Committee, is responsible for monitoring compliance with the UPM Code of Conduct and other corporate policies (read more p. 73-74). The Group Executive Team, headed by the President and CEO, is in charge of the daily management of corporate responsibility, determining the course of action and guiding development work. In practice, corporate responsibility efforts take place in businesses and functions, and in the Group's Environment & Responsibility team, which coordinates the projects carried out by businesses and functions. UPM continually strives to improve its performance by using various tools, such as certified management systems.

## Several focus areas

The main focus in 2016 was on the internal UPM Code of Conduct trainings. In addition, the effects of UPM Code of Conduct was extended to cover UPM's suppliers and third party intermediaries.

The safety of employees and contractors remained an important focus area. In 2016, UPM introduced a global reporting tool, One Safety, for all UPMers and contractors. The tool covers environment, health and safety, product and process safety as well as security. In 2016, UPM's pulp business developed a joint integrated management system for its four pulp mills. A similar project has started for UPM's paper mills in Finland.

UPM conducted a high-level human rights assessment in 2013. An action plan for developing responsible sourcing was created after the assessment and it has been systematically applied throughout the supply chain. In addition, UPM has continuously focused on improving occupational health and safety and has conducted programmes related to improving employee health, reducing environmental impact and enhancing product safety. UPM considers its salient human rights issues to include child labour, forced labour, environmental pollution, product safety, occupational health and safety, working conditions, discrimination and corruption. In assessing human rights, the rights of the following vulnerable groups are especially taken into account: children, minorities, migrant workers and indigenous people. In 2016, UPM initiated a global assessment of human rights focusing on activities at UPM sites, community relations and local sourcing. This assessment will be completed in 2017 and action plans determined for all sites where improvement is required.

Read more: [www.upm.com](http://www.upm.com)

Read more: UPM employees on pages 40-45 and stakeholders on pages 46-51.



MEMBER OF  
**Dow Jones Sustainability Indices**  
In Collaboration with RobecoSAM



**ROBECOSAM Sustainability Award Gold Class 2016**



### INDUSTRY LEADER

Our consistent efforts regarding responsibility issues have received recognition from several third parties and have made us one of the industry leaders in several fields.

**UN Global Compact LEAD:** UPM is the first forest industry company and the first Finnish company to ever receive an invitation to join LEAD.

**Dow Jones Sustainability Index:** UPM has been listed as the industry leader in the forest and paper sector in the Dow Jones Sustainability Europe Index (DJSI) for 2016-2017 for the fifth time in a row.

**Corporate Knights:** UPM has been ranked 25th within the list of the 100 most sustainable corporations in the World (Global 100) in 2016.

**RobecoSAM's annual Sustainability Yearbook:** UPM has been ranked as an industry leader with gold-class distinction in 2016.

**CDP's Forest Program:** UPM has been recognised with a global leadership position in the 2016 Forest A List for timber and timber-based products.

**CDP's Climate Change Program:** UPM has been included in the CDP Climate A List for climate actions and transparent climate reporting.

**CDP's Water Program:** UPM has received an A- score, granting it a leadership position within CDP's ranking system.

**PPI Awards:** UPM has received the PPI Bio Strategy Award 2016 for its biofuels business.

**Below50 coalition:** UPM Biofuels joined the below50 coalition to increase sustainable fuel usage for a low-carbon world.



# UPM as an investment

Dividend proposal **+27%**  
Share price 2016 **+35%**

## UPM AIMS TO INCREASE LONG-TERM SHAREHOLDER VALUE

- 1 PERFORMANCE** UPM is committed to continuous improvement in its financial, social and environmental performance. At the business area level, UPM aims for top performance in its respective markets compared with peers.
- 2 GROWTH** UPM invests to expand its businesses with strong long-term fundamentals for growth and profitability. The company has clear long-term return targets for its businesses. Earnings growth is prioritised over top-line growth.
- 3 PORTFOLIO** Increasing the share of attractive growth businesses improves the company's long-term profitability and boosts the value of the shares.
- 4 INNOVATION** UPM's expertise in renewable and recyclable materials, low-emission energy and resource efficiency is the key to developing new, sustainable businesses with high added value and unique competitive advantage.

**Strong cash flow** enables focused growth investments, focused M&A, new business development as well as attractive dividends to UPM shareholders.

**An industry-leading balance sheet** mitigates risks and enables UPM to accelerate its business portfolio transformation, when the opportunity and timing are right.

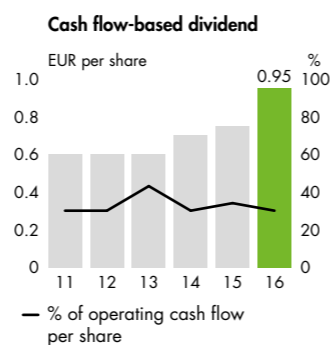
**Responsibility is good business:** Good governance, industry-leading environmental performance, responsible sourcing and a safe working environment are important sources of competitive advantage.

**Attractive dividend** UPM aims to pay an attractive dividend, 30-40% of the company's annual operating cash flow per share.

## 5-YEAR SHARE PERFORMANCE AND VALUATION MULTIPLES

	2016	2015	2014	2013	2012
Share price at 31 Dec, EUR	23.34	17.23	13.62	12.28	8.81
Comparable EPS, EUR <sup>1)</sup>	1.65	1.38	1.20	0.91	0.74
Dividend per share, EUR	0.95 <sup>1)</sup>	0.75	0.70	0.60	0.60
Operating cash flow per share, EUR	3.16	2.22	2.33	1.39	1.98
Effective dividend yield, %	4.1	4.4	5.1	4.9	6.8
P/E ratio	14.1	10.0	14.2	19.5	neg.
P/BV ratio <sup>2)</sup>	1.51	1.16	0.97	0.87	0.62
EV/EBITDA ratio <sup>3)</sup>	8.7	8.4	7.5	8.3	6.0
Market capitalisation, EUR million	12,452	9,192	7,266	6,497	4,633

<sup>1)</sup> 2016: Board's proposal  
<sup>1)</sup> Comparable EPS for 2014-2016; EPS, excl. special items for 2012-2013  
<sup>2)</sup> P/BV ratio = Share price at 31.12./Equity per share  
<sup>3)</sup> EV/EBITDA ratio = (Market capitalisation + Net debt)/EBITDA



# UPM renewed its long-term financial targets

UPM has achieved a clear improvement in the financial performance since adopting the current business model of six separate businesses in 2013. With renewed long-term financial targets, UPM aims higher.

## IN THE NEW TARGETS:

- the business area return targets and the comparable ROE target have been increased.
- comparable EBIT growth has been introduced as a new group-level target
- a new financial policy on leverage based on net debt/EBITDA has been introduced
- the cash flow-based dividend policy remains unchanged

long-term fundamentals. Earnings growth is prioritised over top-line growth. UPM will invest in projects with attractive and sustainable returns, supported by a clear competitive advantage. The company also aims to capture opportunities to develop its business and product mix and further improve its cost competitiveness.

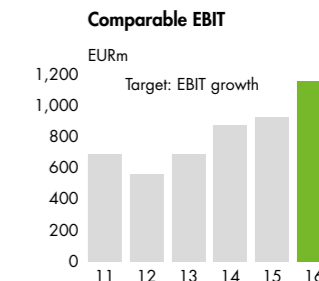
## Efficient capital structure and return on equity

UPM aims to maintain a strong balance sheet. Investment grade rating is an important element in UPM's financing strategy. UPM's new financial policy on leverage is based on net debt/EBITDA ratio of approximately 2 times or less. In 2016, net debt/EBITDA was 0.73 times.

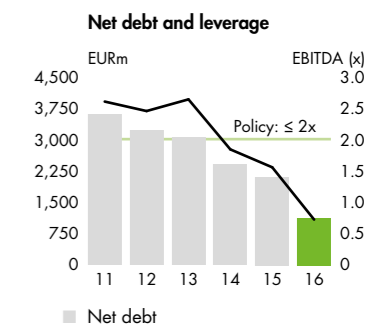
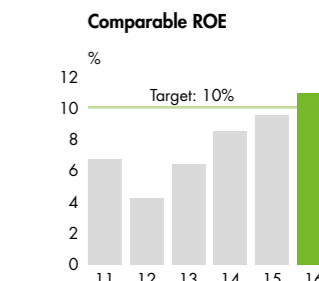
The previous maximum gearing limit of 90% has been discontinued as redundant. At the end of 2016, gearing ratio was 14%.

UPM has increased its ROE target, now aiming for a 10% return on equity. ROE also takes into account the financing, taxation and capital structure of the group. In 2016, comparable ROE was 10.9%.

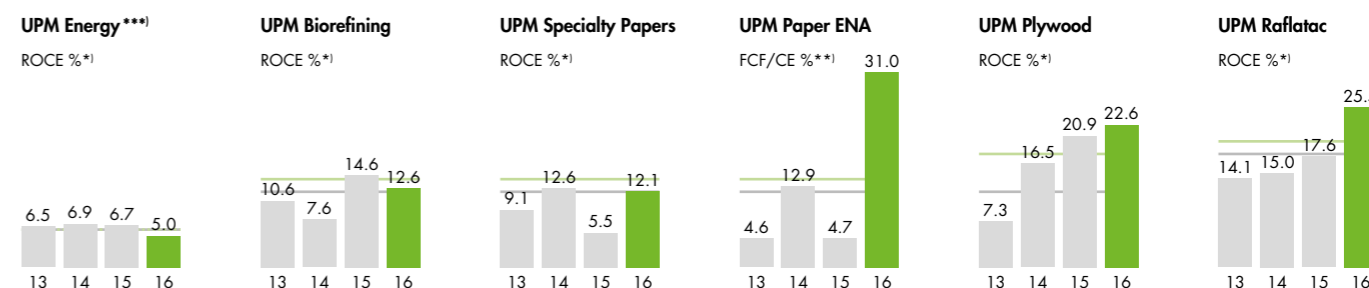
The previous target was variable: 5 percentage points over a ten-year risk-free investment such as the Finnish government's euro-denominated bonds. At the end of 2016, the minimum target for return on equity, as defined above, was 5.3%.



Comparable figures for 2014-2016, excluding special items for earlier years



## Business area returns and long-term targets



\* ROCE % = Return of capital employed excluding items affecting comparability.  
 \*\* Free cash flow after investing activities (investments and/or divestments) and restructuring costs.  
 \*\*\* UPM Energy assets valued at fair value.

2016 **10.9%** Comparable return on equity

# Guided by the Biofore strategy

UPM's Biofore strategy guides the company in achieving its responsibility targets for 2030 and in contributing to UN Sustainability Development Goals (SDG).

In order to guide its responsibility activities, UPM has established a set of responsibility focus areas with targets and key performance indicators. They are analysed every year based on a materiality analysis (page 14). The focus areas cover economic, social and environmental responsibility.

Having successfully transformed its business model and improved its business performance, UPM has renewed its long-term financial targets in January 2017. Targets related to diversity and inclusion as well as community engagement were changed from launching to implementation. Climate-related focus area was strengthened with two new targets for energy efficiency and share of renewable fuels. The scope of ecolabelled products was widened to cover also UPM Raflatac's products.

In the area of economic responsibility, UPM's focus areas are economic performance, good governance and responsible sourcing. By economic performance the company creates value to the entire surrounding community. Good governance helps UPM to avoid risks and enables growth and new business opportunities. Responsible sourcing not only minimises risks, but also creates extensive direct and indirect added value.

In the area of social responsibility the focus is on the fulfilment of human rights, occupational health and safety, local stakeholder engagement and UPM's role as a responsible employer. UPM is committed to respecting human rights. Being a responsible employer improves employee performance, engages people and creates a safe working environment.

As a result of its significant local presence, UPM adds value to society. The company also strives to increase this value through stakeholder engagement.

Environmental responsibility covers sustainable products, the climate, the use of forests and water, and waste reduction. Some of the targets are continuous and some have been extended to 2030. Long-term targets are also monitored on an annual basis. For environmental targets, the reference year is 2008.

United Nations Sustainable Development Goals guiding UPM Targets



## UPM RESPONSIBILITY FOCUS AREA

## 2030 TARGET

## 2030 FOLLOW-UP / 2016 RESULTS

UPM RESPONSIBILITY FOCUS AREA	2030 TARGET	2030 FOLLOW-UP / 2016 RESULTS
<b>ECONOMIC</b>		
<b>Profit</b> Creating value to shareholders	<ul style="list-style-type: none"> <li>Comparable EBIT growth through focused top-line growth and margin expansion</li> <li>Comparable ROE: 10%</li> <li>Net debt/EBITDA: around 2 times or less</li> </ul>	<ul style="list-style-type: none"> <li>Comparable EBIT increased by 25% to EUR 1,143 million (916 million).</li> <li>Comparable ROE was 10.9%.</li> <li>Net debt/EBITDA was 0.73 times.</li> </ul>
<b>Governance</b> Ensuring accountability and compliance	<ul style="list-style-type: none"> <li>100% coverage of participation to UPM Code of Conduct training (continuous)</li> </ul>	<ul style="list-style-type: none"> <li>97% of active employees completed the renewed Code of Conduct training.</li> </ul>
<b>Responsible sourcing</b> Adding value through responsible business practices	<ul style="list-style-type: none"> <li>80% of UPM spend qualified against UPM Supplier Code (continuous)</li> <li>100% of UPM raw material spend qualified against UPM Supplier Code by 2030 <sup>1)</sup></li> <li>Continuous supplier auditing based on systematic risk assessment practices</li> </ul>	<ul style="list-style-type: none"> <li>80% of supplier spend qualified against UPM Supplier Code. (+1pp compared with 2015).</li> <li>94% of raw material spend qualified against UPM Supplier Code.</li> <li>Since 2013, the number of risk assessment-based supplier audits has been doubled, with a much wider geographical area than earlier.</li> </ul>
<b>SOCIAL</b>		
<b>Diversity and inclusion</b> Developing organisational culture and local conditions to ensure inclusive and diverse working environment for business success	<ul style="list-style-type: none"> <li>All UPM's employees are treated as individuals regardless of gender, age, race, nationality etc. 100% favourable responses in Employee Engagement Survey by 2030</li> <li>Diversity and inclusion initiative in place</li> </ul>	<ul style="list-style-type: none"> <li>Responses to Employee Engagement Survey's diversity question were 79% favourable (+2 ppt).</li> <li>Diversity initiative was started.</li> </ul>
<b>Continuous learning and development</b> Ensuring high performance for business success and continuous professional development for future employability	<ul style="list-style-type: none"> <li>Target setting and development plan for all employees, completion rate 100% by 2030</li> <li>Employees experience the opportunity for learning and development, 80% favourable in Employee Engagement Survey by 2030</li> </ul>	<ul style="list-style-type: none"> <li>87% of all permanent employees had a personal performance review with their managers.</li> <li>Responses to Employee Engagement Survey's question regarding learning and development were 64% favourable.</li> </ul>
<b>Responsible leadership</b> Emphasising value-based and inspiring leadership and integrity Continuous development of working environment	<ul style="list-style-type: none"> <li>Employee engagement index overall favourable score in global top quarter by 2030</li> </ul>	<ul style="list-style-type: none"> <li>Employee engagement index overall favourable score increased to 69% (66%). This is 8 percentage points below global top quarter.</li> </ul>
<b>Working conditions</b> Ensuring safe and healthy working environment and wellbeing of employees	<ul style="list-style-type: none"> <li>No fatalities or serious accidents in UPM operations</li> <li>Continuous improvement in safety: Lost time accident frequency (LTAF) &lt;1 and Total recordable injury frequency (TRIF) &lt;2 levels permanently reached including contractors</li> <li>All operations have certified OHS system by 2030</li> <li>Health Promotion Programme is in use at all UPM sites and businesses by 2030</li> <li>Absenteeism rate &lt; 2 % in all organisations by 2030</li> </ul>	<ul style="list-style-type: none"> <li>Two fatal accidents in 2016, one involving an UPM employee and one contractor accident.</li> <li>LTAF was 3.7 for own employees and 6.2 for contractors. TRIF was 9.3 for own employees and 7.5 for contractors.</li> <li>All production sites have an OHS management system in place. 38% of the sites got external certification of their OHS system.</li> <li>A majority of the sites implemented their programme.</li> <li>The absenteeism rate was 3.4% (3.7%) in 2016.</li> </ul>
<b>Community involvement</b> Ensuring local commitment	<ul style="list-style-type: none"> <li>Continuous development of strategic sustainability initiatives with leading NGOs</li> <li>Continuous sharing of best practices of stakeholder initiatives</li> <li>UPM's Biofore Share and Care programme brings significant added value</li> </ul>	<ul style="list-style-type: none"> <li>Co-operation with BirdLife and Vida Silvestre continued.</li> <li>Sharing of best practices ensured through well-established operational stakeholder forums, for example.</li> <li>Programme with four focus areas was launched.</li> </ul>
<b>ENVIRONMENTAL <sup>2)</sup></b>		
<b>Product stewardship</b> Taking care of the entire lifecycle	<ul style="list-style-type: none"> <li>Environmental Management Systems in 100% use (continuous)</li> <li>Environmental Product Declarations for all products (continuous) <sup>3)</sup></li> <li>All applicable products ecolabelled by 2030</li> </ul>	<ul style="list-style-type: none"> <li>96% of production sites have a certified environmental management system in place, remaining have implementation underway.</li> <li>Environmental declarations are available for all relevant UPM products.</li> <li>The share of ecolabelled products was 69% (70%). (Scope widened)</li> </ul>
<b>Waste</b> Promoting material efficiency and circular economy – reduce, reuse and recycle	<ul style="list-style-type: none"> <li>No process waste to landfills or to incineration without energy recovery by 2030</li> </ul>	<ul style="list-style-type: none"> <li>89% of UPM's total process waste was recycled or recovered.</li> </ul>
<b>Climate</b> Creating climate solutions and working towards carbon neutrality	<ul style="list-style-type: none"> <li>Fossil CO<sub>2</sub> emissions from own combustion and purchased electricity (Scope 1 and 2) reduced 30% by 2030</li> <li>Maximise the business benefits of greenhouse gas claims (continuous)</li> <li>Improve energy efficiency annually by 1% (continuous)</li> <li>70% share of renewable fuels (continuous)</li> <li>Acidifying flue gases (NO<sub>x</sub>/SO<sub>2</sub>) reduced 20% by 2030 <sup>4)</sup></li> </ul>	<ul style="list-style-type: none"> <li>Despite improvements, actions have not compensated for the increased level caused by the Myllykoski acquisition in 2011 and increased CO<sub>2</sub> factors for purchased power.</li> <li>UPM sold greenhouse gas claims worth of 480,000 CO<sub>2</sub> tonnes. Without sales UPM's reported emissions (Scope 1 and 2) would have been over 7% lower.</li> <li>Energy efficiency target was not achieved.</li> <li>Level of 69% (67%) reached in the use of renewable fuels.</li> <li>24% reduction achieved since 2008 for the UPM average product.</li> </ul>
<b>Water</b> Using water responsibly	<ul style="list-style-type: none"> <li>Effluent load (COD) reduced 40% by 2030 <sup>4)</sup></li> <li>Wastewater volume reduced 30% by 2030 <sup>4)</sup></li> <li>100% of nutrients used at effluent treatment from recycled sources by 2030</li> </ul>	<ul style="list-style-type: none"> <li>27% reduction in effluent load achieved since 2008 for the UPM average product.</li> <li>13% reduction in wastewater volume achieved since 2008 for the UPM average product.</li> <li>Project was started in 2016, one site almost reached the level already.</li> </ul>
<b>Forests and biodiversity</b> Ensuring sustainable land use and keeping forests full of life	<ul style="list-style-type: none"> <li>100% coverage of chains of custody (continuous)</li> <li>All fibre certified by 2030</li> </ul>	<ul style="list-style-type: none"> <li>Coverage is 100%.</li> <li>The share of certified fibre remained at 84%.</li> </ul>

<sup>1)</sup> Covers all UPM raw material spend including wood and wood-based biomass sourcing and excluding energy  
<sup>2)</sup> Environmental targets: from 2008 levels  
<sup>3)</sup> Includes paper, timber, plywood, pulp and label  
<sup>4)</sup> Numerical targets relevant for pulp and paper production



# Changing operating environment

The global megatrends represent many long-term opportunities and challenges for UPM towards 2030 and beyond. They are also driving demand for sustainable solutions and responsible business practices.

## MEGATRENDS

### POPULATION GROWTH, URBANISATION AND DEMOGRAPHIC CHANGE



### EXPRESSIONS

Global consumption growth  
Growing middle class in emerging markets  
Higher living standards  
Changing consumer behaviour and preferences  
Resource scarcity, competition for natural resources  
Deforestation

### OPPORTUNITIES FOR UPM

**UPM Pulp | UPM Biofuels | UPM Raflatac | UPM Specialty Papers | UPM Plywood | UPM Timber | UPM Biochemicals | UPM Biocomposites**  
Growing demand for renewable materials and renewable energy  
Growing demand for safe and sustainable products  
New business opportunities with ecodesign  
Resource efficiency and circular economy offer competitive advantage  
Cost efficient and responsible supply chains  
Healthy forests and safeguarded wood availability

### CHALLENGES FOR UPM

Fit of UPM's product mix and geographical presence to future growth outlook  
Unpredictable raw material costs and availability  
Competition for renewable raw materials  
Unpredictable regulation and subsidies may distort markets

## DIGITALISATION



Changing consumer behaviour and preferences  
Growing e-commerce  
Changing work  
Disruptive business models and technologies

**UPM Pulp | UPM Raflatac | UPM Specialty Papers | UPM Plywood**  
Online shopping drives demand growth for labelling, packaging and pulp  
Different demand trends for different paper end uses and geographical areas  
UPM's paper production platform provides continuous optimisation opportunities  
Increasing efficiency, productivity and change agility  
Industrial internet, big data, automation

**UPM Paper ENA**  
Declining graphic paper consumption  
Fit of UPM's product mix and geographical presence to future growth outlook  
Changing needs for skills and competencies  
Cyber security

## CLIMATE CHANGE



Policies to mitigate climate change  
Replacing fossil energy and oil-based materials  
Direct and indirect impacts of climate change

**UPM Biofuels | UPM Energy | UPM Biochemicals | UPM Biocomposites | UPM Pulp | UPM Plywood | UPM Timber**  
Sustainability offers competitive advantage and growth opportunities  
Preferential treatment of low-emission and renewable energy  
Growing demand for safe and sustainable products  
New business opportunities with ecodesign  
Forests as carbon sinks  
Increased forest growth in Northern Europe

Unpredictable regulation and subsidies may distort markets  
Cost for greenhouse gas emissions  
Political instability  
Increasingly common and more severe storms, floods, draughts and natural disasters  
Unpredictable wood harvesting conditions

## RESPONSIBILITY AND COMPLIANCE



Increasing regulation, subsidies  
Requirements for transparency  
Global trade and businesses – local impacts  
Focus on human rights, environment, biodiversity

Responsibility and sustainability offer competitive advantage and growth opportunities  
Regulation may drive markets for sustainable products  
New business opportunities with ecodesign  
Transparency as competitive advantage  
Cost efficient and responsible supply chains  
Engaged and diverse workforce

Reputation and financial risks in case of non-compliance  
Unpredictable regulation and subsidies may distort markets  
Trade barriers, protectionism, sanctions

## UPM's Biofore strategy fits well into the changing world

### 1 PERFORMANCE

UPM's continuous improvement programmes for variable and fixed costs and working capital  
Efficient use of renewable materials and energy, recycling of production waste  
UPM Code of Conduct, compliance, transparency  
UPM Supplier and Third Party Code, responsible sourcing  
UPM One Safety, continuous improvement of health and safety  
Human capital development, employee engagement and capabilities  
More with Biofore, industry leading environmental performance, Best Available Techniques (BAT)  
UPM's global biodiversity programme, sustainable forest management  
UPM's water strategy, production in water abundant areas  
UPM's Biofore Share and Care programme, local commitment  
Robust and safe IT systems

### 2 GROWTH

Focused growth investments in UPM Pulp, UPM Biofuels, UPM Raflatac, UPM Specialty Papers, UPM Plywood, UPM Energy  
Commercialise new business in biofuels (outside food value chain), biocomposites and biochemicals  
Focus on cost competitive, low-emission energy sources  
Talent attraction

### 3 PORTFOLIO

Business portfolio development organically and potentially through M&A  
Businesses with best development and/or value potential for UPM  
Businesses with sustainable competitive advantage  
Disciplined capital allocation

### 4 INNOVATION

Product stewardship  
Develop new businesses in biofuels (outside food value chain), biocomposites and biochemicals  
Value added product and service development in current businesses  
Continuous improvement in cost competitiveness and efficiency  
Expertise in renewable materials and energy  
Recycling and reuse of production waste  
Collaboration and partnerships in R&D  
Intellectual property rights

# Risks and opportunities

The operating environment exposes UPM to a number of risks and opportunities. Many of them arise from general economic activity and global megatrends (see previous page). Execution of strategies exposes UPM and its business areas, functions and production plants to a number of risks and opportunities.



INFLUENCING TRENDS	RISK DESCRIPTION	IMPACT	MANAGEMENT	OPPORTUNITY	STRATEGIC FOCUS AREAS INVOLVED
	Global economic cycles	Impacts the demand and sales prices of various UPM products and main input costs items, as well as currency exchange rates. UPM's main earnings sensitivities are presented on page 115.	Industry leading balance sheet. Continuous improvement in competitiveness, resource efficiency and customer offering. Business portfolio development.	UPM's strong balance sheet and focus on competitiveness mitigate risks and may present strategic opportunities (incl. M&A) in an economic downturn.	1 2 3
	Faster than expected decline in demand for graphic paper	Increased pressure on UPM's graphic paper deliveries and sales prices	Continuous improvement in competitiveness. Focus on more attractive paper end-use segments. Adjust paper production capacity to profitable customer demand. Business portfolio development.	UPM's large paper production platform provides continuous optimisation opportunities. Reliable supplier of high quality products and customer service merits customer loyalty. Share of UPM businesses in declining markets is decreasing.	1 3
	Overcapacity in some of UPM's products due to changes in demand or supply	Temporarily impacts sales prices and deliveries of the product in question	Continuous improvement in competitiveness. Disciplined planning and selection of investments. Business portfolio development.	UPM's diverse business portfolio, focus on competitiveness and strong balance sheet mitigate risks and may present strategic opportunities (incl. M&A) in a cyclical downturn of a business.	1 2 3
	Significant moves in currency exchange rates relevant for UPM	Impacts UPM's earnings and cash flow directly and competitiveness indirectly. UPM's main currency exposures are presented on page 138.	Continuous hedging of net currency exposure. Hedging the balance sheet. Continuous improvement in competitiveness. Disciplined planning and selection of investments. Business portfolio development.	UPM's diverse business portfolio and geographical presence, focus on competitiveness and strong balance sheet mitigate risks and may present strategic opportunities in changing currency environment.	1 2 3
	International trade barriers, e.g. antidumping duties	Impacts trade flows and short-term market balances and may directly or indirectly impact sales prices and deliveries of UPM's products.	Monitoring through international trade associations. Continuous improvement in competitiveness. Disciplined planning and selection of investments. Business portfolio development.	UPM's diverse business portfolio and geographical presence mitigate risks and may present opportunities for optimisation in case of trade barriers in some products and locations.	1 2 3
	Changes in regulation, subsidies, taxation, e.g. related to climate policies	May distort markets, e.g. for energy or wood raw material. May change relative competitiveness of energy forms. May create additional competition for wood raw material. UPM's sensitivity to carbon pricing is presented on page 102.	Monitoring for early signals for regulation changes. Communicate the impacts of such policies on employment and creation of value-added clearly. Continuous improvement in competitiveness, materials and energy efficiency. Leading environmental performance. Innovation and selected investments in value added renewable products and energy. Business portfolio development. Sustainable forest management and UPM biodiversity programme.	May drive market growth for sustainable products and energy, e.g. renewable fuels. Resource efficiency, circular economy and renewability are increasingly important sources of competitive advantage. In electricity markets, hydropower is an increasingly important and competitive form of power generation. Increased wood growth in northern hemisphere.	1 2 3 4
	Availability and price of major production inputs like wood, fibre, chemicals and water	Increased cost of raw materials and potential production interruptions. UPM's cost structure is presented on page 115 and sensitivity to water prices on page 102.	Continuously improving resource efficiency. Long-term supply contracts and relying on alternate suppliers. Selected ownership of forest land and long-term forest management contracts.	UPM's continuous improvement in resource efficiency and circular economy mitigate risks and offer competitive advantage.	1 3
	Continuous improvement in competitiveness	Weakening relative competitiveness impacts profitability and increases risks related to the external business environment (above).	Programmes for savings in variable and fixed costs. Culture and track record of continuous improvement in productivity and resource efficiency. Product and service development.	Increasing relative competitiveness improves profitability and mitigates risks related to the external business environment (above).	1 4
	Selection and execution of investment projects	Material cost overruns. Inopportune timing. Return on investment does not meet targets.	Disciplined selection, planning, project management and follow-up processes. Investing in projects with attractive returns and sustainable competitive advantage.	Carefully selected and implemented growth projects improve UPM's profitability and ROCE. UPM's financial targets are presented on page 17.	2
	OL3 nuclear plant project completion and start-up	Loss of profit and cost overruns. Inopportune timing. Return on investment does not meet targets.	Ensuring that contractual obligations are met by both parties. Arbitration proceedings have been initiated by both parties.	The investment provides a competitive, safe and CO <sub>2</sub> emission-free electricity supply for the long term.	2
	Selection and execution of M&A	Cost of acquisition proves high and/or targets for strategic fit and integration are not met. Return on investment does not meet targets. Damage to reputation.	Disciplined acquisition preparation to ensure the strategic fit, right valuation and effective integration. Environmental and social impact assessments. Stakeholder engagement.	UPM's strong balance sheet and cash flow enable value-enhancing M&A when timing and opportunity are right. Societal value creation.	3
	Developing and commercialising innovations and new businesses	Return on investment does not meet targets. Lost opportunity.	Disciplined selection, development and commercialisation of processes for innovations. Collaboration and partnerships in R&D and commercialisation. Business model development.	Existing products and services redesigned to bring more value. New value-added products to replace oil-based materials may be a significant source of value creation and growth for UPM.	1 4
	Compliance risks; competition law, anti-corruption, human rights, securities regulation	Damage to reputation. Loss of business. Fines and damages. May impact the value of the company.	Governance, compliance procedures, UPM Code of Conduct, UPM Supplier and Third Party Code, audits, whistleblowing channel, trainings.	Good governance mitigates risks and promotes best practices. High responsibility standards and transparency are a differentiating factor and create long term value.	1 2 3
	Supply chain and third party reputation risks	Damage to reputation. Loss of business. Loss of competitive position. May impact the value of the company.	UPM Code of Conduct, UPM Supplier and Third Party Code, supplier audits, certification.	Good governance and responsible sourcing practices mitigate risks and provide competitive advantage.	1 2 3
	Environmental risks; a leak or spill due to malfunction or human error	Damage to reputation. Sanctions. Direct costs to clean up and repair potential damages to production plant. Loss of production.	Best available techniques (BAT). Maintenance, internal control and reports. Certified environmental management systems (ISO 14001, EMAS).	Industry-leading environmental performance provides competitive advantage, including efficiency gains.	1 2 3
	Physical damage to the employees or property	Harm to employees and damage to reputation. Damage to assets or loss of production.	One Safety system (p. 45). Loss prevention activities and systems. Emergency and business continuity procedures.	Leading health and safety performance strengthens the brand as an employer, as well as improving engagement, efficiency and productivity.	1
	Ability to retain and recruit skilled personnel	Business planning and execution impaired, affecting long-term profitability	Competence development. Incentive schemes. Workplace safety. Acting on employee engagement and management effectiveness.	Engaged high-performing people enable the implementation of the Biofore strategy, as well as commercial success.	1 2 3 4
	Availability and security of information systems	Interruptions in critical information systems cause a major interruption to UPM's business. Damage to reputation. Loss of business.	Technical, physical and process improvements to mitigate availability and security risks.	Sophisticated IT systems enable efficient operations, optimised performance as well as new customer services and data security.	1 4

# UPM Biorefining

## Benefitting from growth investments

### OUR DIRECTION

- **In Pulp:** Provide customers with direct access to the most versatile pulp range and advanced technical service. Maintain cost competitiveness through continuous operational improvement. Grow as a responsible and cost-efficient pulp supplier.
- **In Biofuels:** Provide unique wood-based advanced biofuels in various markets and segments, achieve top performance at UPM Lappeenranta Biorefinery, evaluate opportunities for scaling up biofuels business.
- **In Timber:** Enhance profitability through efficient use of wood supply, integrated full-production and sharpened commercial strategy. New customer promise "Grown to Sustain" will strengthen the competitive advantages of UPM Timber on strategic markets.

### OUR STRENGTHS

- Versatile range of sustainably produced pulp grades suitable for a wide range of end-uses
- Modern, efficient mills and business committed to growth
- Responsibility integrated in all operations from wood sourcing to logistics
- Established producer of advanced renewable diesel
- Competitive sawmills with skilled own global sales network
- Synergistic supply chain of wood for sawn timber, pulp and renewable diesel

### GROWTH DRIVERS

#### Pulp and timber

- Private consumption in versatile end-uses
- Population growth, increasing income levels
- Urban lifestyle
- Demographic change
- Future constrains of white recycled fibre supply

#### Advanced biofuels

- Climate change
- Sustainability
- Low carbon mobility
- Pressure to reduce greenhouse gas emissions in transport
- Increasing the EU's self-sufficiency in energy

### Benefits from integrated production

In the UPM Biorefining business area, UPM combines integrated production of pulp, timber and biofuels with a synergistic supply chain of wood raw materials. Timber by-products are used as pulp raw material. Pulp mills produce renewable energy in their recovery boilers and provide CO<sub>2</sub>-neutral biomass-based electricity. Crude tall oil, a residue of pulp production, is the raw material in UPM's renewable BioVerno diesel.

### Benefitting from focused investments in pulp

Over recent years, UPM has made focused investments to expand production and improve efficiency at all four pulp mills. Debottlenecking investments continued in 2016. The UPM Kaukas pulp mill investment was completed in December. The investment strengthens the mill's efficiency and competitiveness.

In July, UPM announced a EUR 98 million investment in its Kymi pulp mill in Finland, increasing the mill's annual pulp production capacity by 170,000 tonnes to 870,000 tonnes by the end of 2017. This investment will further improve UPM Kymi's cost competitiveness and environmental performance.

UPM's total pulp production capacity has grown by more than 500,000 tonnes since 2013 with investments of approximately EUR 350 million. Simultaneously, production efficiency has improved at all mills thanks to these growth investments. UPM has also focused on strengthening employee competencies and mill maintenance as well as environmental performance.

### Performance buoyed by growth and improved efficiency

Thanks to increased capacity, UPM has been able to respond to growing demand from existing customers in tissue, specialty papers and packaging. UPM pulp deliveries increased by 7% in 2016 compared to the previous year. In combination with lower operating costs, the negative impact of UPM's lower pulp sales prices was partly offset.

As an integral part of the value chain, efforts to enhance wood supply continued. Profitability in sawmill operations improved thanks to increased delivery volumes and improved production efficiency but remained modest due to stiff price competition.

The quality of the wood fibre impacts sourcing costs, production efficiency and pulp quality. In 2016, benefits were gained in both fibre quality and optimisation of harvesting and logistics costs.

UPM Timber is a significant operator in the high quality Nordic certified sawn timber segment and a reliable supplier for the growing construction,

KEY FIGURES	2016	2015
Sales, EURm	2,206	2,272
Comparable EBIT, EURm	406	467
Capital employed (average), EURm	3,231	3,191
Comparable ROCE, %	12.6	14.6
Personnel on 31 Dec.	2,630	2,593

### EFFICIENCY AT A NEW LEVEL AT UPM KYMI

The investments made at the UPM Kymi pulp mill improve the efficiency of the entire mill integrate: the pulp and paper businesses can independently optimise their production and simultaneously benefit from mutual synergies related to energy, logistics and environmental management.

The largest investments at the pulp mill have been the new chemical recovery island introduced in 2008 and the investment in a new pulp drying machine, debarking plant and the modernisation of the soft-wood fibre line, which was completed in the autumn of 2015. In the summer of 2016, UPM decided to invest a further EUR 98 million in the pulp mill and increase the annual production capacity to 870,000 tonnes by the end of 2017.

Previously, the pulp mill had to limit pulp production when the paper machine was not running because the mill did not have enough capacity for drying all the pulp before baling it for export. Now pulp production is no longer dependent on whether the paper mill is running or not.

The investments will also improve the energy efficiency of the integrated mill site. Despite the major increase in the pulp mill's production capacity, emissions into the air and water will remain at the same level as before.

Read more: [www.upmpulp.com](http://www.upmpulp.com)



- CAPITALS**
- Capital-intensive process industry
  - Sustainable wood from certified sources
  - State of the art production technology
  - Community engagement
  - Engaged high-performing people
  - Reliable well-functioning supply chain

**UPM PULP AND TIMBER VALUE CREATED**

- Responsible and competitive sourcing
- Modern and efficient integrated production
- Reliable pulp and timber deliveries
- Multi-fibre pulp product offering
- World-class technical service close to customer
- Best-in-class sustainability offering

- CUSTOMERS**
- PULP**
- Tissue, board, speciality and graphic paper producers
- TIMBER**
- Furniture, joinery industries, construction and packaging

- OUTCOMES**
- Employment, work safety
  - Community wellbeing
  - Safe and sustainable products
- SOCIAL IMPACT**
- Biodiversity
  - Renewable energy
  - Carbon storing products
  - Low emissions
- ENVIRONMENTAL IMPACT**
- ROCE
  - Growth
- ECONOMIC IMPACT**



- CAPITALS**
- Capital intensive process industry
  - Engaged high performing people
  - Responsible raw material sourcing
  - Integration to internal raw-material
  - Intellectual property rights
  - Community engagement

**UPM BIOFUELS VALUE CREATED**

Advanced renewable diesel and naphtha  
Competitive and sustainable non-food feedstock  
Infrastructure synergies  
Sustainability leader in biofuel solutions in Europe  
Intellectual property rights

- CUSTOMERS**
- Oil majors
  - Distributors and retailers
  - Dedicated heavy-duty fleets
  - Marine fleets

- OUTCOMES**
- Employment
  - Work safety
  - Community wellbeing

**SOCIAL IMPACT**

- Low-emission transportation fuels
- Renewable energy
- Sustainable products

**ENVIRONMENTAL IMPACT**

- ROCE
- Growth
- Best available technology

**ECONOMIC IMPACT**



furniture and joinery markets in Europe and Asia. Sawn timber is a versatile and sustainable material, it is strong and can be reused and recycled.

**Long-term demand prospects are promising for pulp**

Demand for sustainably produced chemical pulp continues to increase globally. UPM's four world-class pulp mills serve customers in the growing consumer and industrial end-uses such as tissue, board and specialty papers as well as graphic paper end-uses.

Longer term chemical pulp demand is expected to be further underpinned by a declining supply of white recycled fibre. Supply of white fibre will become restricted, in part due to lower graphic paper production and in part as mixed recovered paper crowds out white recycled fibre in the collection process.

UPM Pulp offers its customers a multi-fibre product range with direct sales to the global market. Through its own production or through the Fibre United co-operation, UPM provides pulp customers with the most versatile range of northern softwood, birch, eucalyptus and semi-chemical pulp. UPM Pulp's own sales and technical service experts are located close to customers in the main markets and in each mill working in close co-operation with UPM's global research and development network.

In July, UPM started discussions with the Government of Uruguay regarding the development of logistics infrastructure in the country. Railroad and road connections are a critical challenge for establishing a large scale industrial operation in the Uruguayan inland and connecting it to a deep sea port. UPM has consistently increased its plantation base in Uruguay.

**Significant improvement in biofuel production efficiency**

UPM has been producing UPM BioVerno renewable drop-in diesel from wood-based residues since early 2015. UPM BioVerno is a unique, competitive and sustainable alternative to fossil fuels or first-generation biofuels, and is well positioned among the few existing biofuel alternatives available on the market. UPM BioVerno significantly reduces greenhouse gas and tail-pipe emissions. Demand is predicted to be strong for sustainable, high-quality advanced biofuels.

The UPM Lappeenranta Biorefinery is the first of its kind in the world. Production is based on a hydrotreatment process developed by UPM, and the capacity is approximately 120 million litres, which is 100,000 tonnes.

In terms of profitability, UPM Biofuels reached the break-even point already in the fourth quarter of 2015. In 2016, the production efficiency improved significantly and production reached a record level. Strong biofuels markets, in particular towards the end of 2016, also contributed positively to the sales and profitability of UPM BioVerno compared to 2015.

To expand target markets, field tests progressed with dedicated fleets, public transportation and shipping. The field tests focused on fuel functionality, emissions and fuel consumption compared to fossil diesel. UPM BioVerno diesel tests in both marine transportation and public buses provided good results – UPM's renewable diesel is well-suited for both end uses even as 100% pure renewable diesel, and functions as well as the best quality fossil-based diesels.

**CLEANER PUBLIC TRANSPORT**

UPM's wood-based UPM BioVerno biofuel has been proven to reduce carbon dioxide and particle emissions in both urban and maritime transport.

UPM has been testing UPM BioVerno diesel fuel in Helsinki region buses in collaboration with the Helsinki Region Transport (HSL) for a year. Traffic is the main source of emissions in cities affecting air quality.

According to the test results, using UPM BioVerno in the current bus fleet instead of fossil diesel would significantly reduce emissions resulting from public transport. By using wood-based fuel, air quality in the Helsinki region could be improved quickly. The tailpipe emissions of UPM BioVerno, such as nitrogen oxides and particulate matter, were significantly lower than those of the commercial grade fossil diesel in laboratory testing.

Maritime transport is looking for new ways to reduce carbon dioxide and sulphur emissions. In the beginning of 2017, the Marine Environment Protection Committee of the International Maritime Organization (IMO) agreed that the sulphur content limit of ships' fuel will be lowered to 0.5% starting from 2020 in all maritime transport.

Increasing the use of biofuels in ships is a cost-effective alternative. In 2016, UPM BioVerno was tested for the first time in a marine vessel in the diesel engine of a dredger. Biofuels offer ship operators a way to reduce ships' carbon dioxide emissions by 80-90% and eliminate sulphur emissions.

 **Read more:**  
[www.upmbiofuels.com](http://www.upmbiofuels.com)

The UPM Lappeenranta Biorefinery is the first significant investment in a new and innovative production facility. Having proven that the technology and business case work, UPM has started evaluating future growth opportunities. The planning includes new alternatives in sustainable liquid feedstocks, new markets and customer segments as well as applications and product development. UPM will continue developing new process technologies using solid wood biomass.

**Efficient use of renewable materials and energy**

UPM has leading competencies both in plantation and industrial operations as well as in environmental and social responsibility.

UPM's modern pulp mills have certified environmental management systems in place and the production technology enables efficient use of raw materials, chemicals, energy and water. In wood sourcing, UPM meets the highest sustainability demands in the industry. UPM BioVerno is a sustainable alternative that helps mitigate climate change. Demand for advanced biofuels is being driven by stricter environmental standards and sustainability.

UPM brings life to the whole community. It plays an active role in the local community as an employer fostering safety and healthy living, and as a business partner. Communities and businesses have grown around UPM pulp and timber operations over the years.

Responsibility offer both competitive advantages and growth opportunities for UPM Biorefining.

# UPM Energy

## Profitability maintained in difficult market conditions

### OUR DIRECTION

- Create value in electricity generation as well as physical and financial trading
- Profitable growth on the Nordic electricity market with CO<sub>2</sub> emission-free generation

### OUR STRENGTHS

- Cost competitive, low-emission electricity generation portfolio
- Hydropower as flexible capacity to create value in markets impacted by increasing price volatility caused by renewable energy
- Reliable nuclear as base load generation
- Value creation track record in physical and financial electricity trading
- Lean, agile and competent organisation

### MARKET TRENDS

- Cost of new technologies is declining fast
- Balancing of the grid is more challenging due to increasing share of weather-dependent wind and solar supply
- Decentralisation of electricity production
- Security of supply weakened due to capacity closures
- Growth outlook for electricity consumption is modest
- Changes in regulation and policies are impacting the willingness of the energy industry to make long term investments
- Market integration increased through investments in grid interconnectors
- Digitalisation brings new opportunities to the industry

KEY FIGURES	2016	2015
Sales, EURm	357	415
Comparable EBIT, EURm	116	181
Capital employed (average), EURm	2,340	2,716
Comparable ROCE, %	5.0	6.7
Personnel on 31 Dec.	71	73

### Business performance

Profitability remained good due to strong hydropower volumes, low-cost generation and spot-on market operations. Compared to the previous year, profitability was lower due to decline in average sales prices.

The low electricity market price in the beginning of the year was impacted by mild temperatures, good hydrological balance and very low commodity prices. Electricity market price increased during the course of the year driven by a deteriorating hydrological balance and increasing coal prices. For the full year, the average Finnish area spot price was EUR 32.5 MWh in 2016, 9% higher than in 2015 (EUR 29.7 MWh).

### Challenging operating environment continued

The Nordic electricity market remained challenging mainly due to increased supply of subsidised renewable electricity. The low market price of electricity combined with the uncertain operating environment does not support new, market-based investments and has also resulted in early decommissioning of condensing capacity.

The share of wind and solar power production is growing. This increases price volatility and also the need for flexible balancing power generation. Hydropower is an efficient way to produce this balancing power. Through optimised use of hydropower assets, UPM Energy is well positioned in challenging markets and able to create value from the increased electricity price volatility.

### Electricity generation portfolio developed further

Through its ownership of Länsi-Suomen Voima Oy, UPM Energy is participating in the expansion of the Harjavalta hydropower plant. A new machine unit was taken into use in September, and refurbishment of the existing two turbines is proceeding. When completed in 2017, the project will improve the efficiency, control and environmental safety of the plant, while also responding to the increasing demand for flexible capacity. The total power output of the Harjavalta plant will increase from 72 MW to 110 MW.

The largest ongoing project is taking place at Teollisuuden Voima Oyj (TVO), which involves building a new EPR-type (European Pressurized Water Reactor) nuclear power unit, known as OL3 EPR, at Olkiluoto, Finland. Through Pohjolan Voima Oy (PVO), UPM is entitled to approximately 500 MW of its capacity. In 2016, the installation works and process system tests continued. The operating license application of the plant unit was submitted in April. According to the plant supplier's schedule, regular electricity production is scheduled to start at OL3 EPR late 2018.

### Well positioned for climate objectives

In November, the Finnish Government published its strategy of implementing EU's 2030 energy and climate policy. As a consequence, it is anticipated that renewable energy, particularly biomass-based, production will increase and replace fossil based production. The government is preparing regulation to abandon coal in energy production.

With assets mainly in hydropower and nuclear, UPM Energy is well positioned to support the Finnish Government's 2030 energy and climate objectives.

UPM Energy produces low-emission electricity supporting climate change mitigation. Flexible hydropower is able to support the grid stability, which is challenged by increasing share of wind and solar.

### PREDICTING ENERGY PRICES USING A DIGITAL CRYSTAL BALL

UPM's energy market analyses support UPM's energy asset management and anticipate development in electricity prices. Price forecasts are not only used for trading and hedging electricity, but also for decision making in UPM's other business areas.

UPM's energy market team analyses energy price developments within markets and produces price forecasts that are based on different scenarios. The team uses its own proprietary analysis tools to provide market analyses that aid decision-making related to short-term and long-term price developments.

The weather plays a particularly significant role in short-term analyses as wind power and other similar renewable energy sources are highly weather-dependent. In the Nordic markets, electricity prices fluctuate significantly based on weather and hydrological conditions.

Read more:  
[www.upmenergy.com](http://www.upmenergy.com),  
[www.upmbiofore.com](http://www.upmbiofore.com)

- CAPITALS**
- Capital intensive utility business
  - Regulation
  - Low-emission energy sources, and water rights
  - Engaged high performing people

### UPM ENERGY VALUE CREATED

- |                   |                      |
|-------------------|----------------------|
| <b>HYDROPOWER</b> | <b>NUCLEAR POWER</b> |
| Renewable         | Efficient base load  |
| Flexible          | Cost competitive     |
| Low cost          | Low emissions        |
| Low emissions     |                      |

Electricity sales for day-ahead and intraday markets  
 Financial electricity trading  
 Active ownership role in co-owned companies  
 Centre of excellence for energy services at UPM

### WHOLESALE MARKET

- END USES**
- Households
  - Small and medium enterprises
  - Industrial

- OUTCOMES**
- Top safety performance
  - Low-emission electricity
  - Flexible power supply
  - Energy supply security
  - ROCE
- SOCIAL IMPACT**
- ENVIRONMENTAL IMPACT**
- ECONOMIC IMPACT**



# UPM Raflatac

## Building on strengths

### OUR DIRECTION

- Profitable organic growth, potentially complemented with acquisitions
- Widening product portfolio especially in high value-added films and special label products
- Expanding customer reach through increased distribution and sales and service coverage

### OUR STRENGTHS

- Modern, strategically located and efficiently scalable production assets
- Accurate and efficient supply chain and global delivery network
- Global scale in R&D, quality development and technical know-how
- Industry leader in sustainability and product safety

### GROWTH DRIVERS

- Private consumption
- Urban lifestyle
- Population growth
- Higher standard of living
- E-commerce
- Legislation
- Self-adhesive labelling technology gaining market share
- Brands and product innovations

KEY FIGURES	2016	2015
Sales, EURm	1,437	1,409
Comparable EBIT, EURm	133	102
Capital employed (average), EURm	524	581
Comparable ROCE, %	25.5	17.6
Personnel on 31 Dec.	3,062	2,894

### Performance improved further

Global demand for self-adhesive label materials continued to grow in 2016. In Europe and North America, demand growth remained on good level. In Asia and Latin America growth picked up.

UPM Raflatac was able to capture the benefits of favourable market development due to its commercial improvements, competitive production platform and efficient distribution. Sales and service capabilities were improved and distribution coverage was enhanced through improved logistics solutions and new terminals. Cost efficiency was improved by focused investments, better production efficiency and quality as well as internal efficiency measures.

UPM Raflatac's deliveries increased by 3% in 2016, and all regions contributed to this. Growth in sales of films and special label products was stronger. Profitability increased mainly due to the improved sales margins and higher delivery volumes. Higher sales margins were mainly driven by a more favourable product mix and improved operational efficiency.

### Expansion to meet growing demand

In October, UPM Raflatac announced EUR 35 million investment in the label stock factory in Wrocław, Poland. By introducing a new coating line together with related reel handling and slitting capacity additions, UPM Raflatac aims to meet the increasing demand for self-adhesive label stock in Europe.

The investment further leverages UPM Raflatac's unique competencies, end-use specific product offering and industry leading, optimally located operating platform in Poland. Production of the new line is planned to commence in the first half of 2018.

### Enhancing growth through product development

UPM Raflatac's capability to deliver innovative solutions to special end-use needs drives growth in high added value segments. Close partnerships with label printers and brand owners are an elementary part in building their brand and product appeal. Developments in adhesive technologies and product constructions for challenging end-use applications enhance growth opportunities. Innovations also secure productivity gains and leaps forward in responsibility and product safety.

### The importance of sustainability is growing

Sustainability and product safety issues are growing in all markets. Brand owners lead the way and the development creates new growth opportunities for value creating partnerships throughout the self-adhesive label stock value chain.

Being among the few operators with global scale and strong regional positions and high standards, UPM Raflatac is well positioned to take share and drive the key sustainability issues of recyclability and product safety together with brand owners, converters and raw material suppliers as well as environmental organisations.

### AN INNOVATION SO THIN IT VANISHES

UPM Raflatac, Saimaan Juomatehdas Brewery and Auraprint printing house have joined forces to develop the thin Vanish™ labelling material for aluminium beverage cans that can be recycled.

Vanish allows self-adhesive labelling to be applied to beverage cans, aluminium cans to be recycled and the opportunity for beverage brands to personalise and market small batches of special brews in a cost-effective manner.

Previously, the labelled cans could not be recycled because they contained so much other material besides the recyclable aluminium. The Vanish label is light enough to ensure that the quality of recycled aluminium is not affected, allowing all of the aluminium to be used again. Cans are also cheaper for breweries to produce and for consumers to buy than glass bottles.

Read more: [www.upmraflatac.com](http://www.upmraflatac.com)  
[www.upmbiofore.com](http://www.upmbiofore.com)  
[www.saimaanjuomatehdas.fi/en](http://www.saimaanjuomatehdas.fi/en)

- CAPITALS**
- Capital light converting business
  - Engaged high performing people
  - Sustainable raw materials such as papers, films and chemicals

### UPM RAFLATAC VALUE CREATED

- Modern, efficient and strategically located label stock factories
- Efficient and accurate supply chain, responsive distribution network
- Global customer reach with sales and service
- Technical know-how, product development
- Responsible sourcing

- CUSTOMERS**
- Label printers
  - Brand owners

- END USES**
- Home and personal care
  - Food and beverages
  - E-commerce and retail
  - Transport and logistics
  - Pharmaceutical
  - Industrial, durables

- OUTCOMES**
- Safe and certified products **SOCIAL IMPACT**
  - Employment and work safety **SOCIAL IMPACT**
  - Recyclable products, waste recycling concept **ENVIRONMENTAL IMPACT**
  - End use brand appeal **ECONOMIC IMPACT**
  - ROCE **ECONOMIC IMPACT**
  - Growth **ECONOMIC IMPACT**

UPM Paper Asia was renamed as UPM Specialty Papers as of 1 October 2016.

# UPM Specialty Papers

## Growth focus on attractive segments

### OUR DIRECTION

- In labelling materials, growth to maintain global leadership positioning through competitive production and strengthened partnerships with customers
- In office papers, growth as one of the largest office paper suppliers in Asia
- Widen product offering in specialities and through new product development, seek opportunities in existing and new end-uses

### OUR STRENGTHS

- Strong market position, competitive products and world class assets
- Extensive experience in high quality release liners and face papers
- Office papers in Asia Pacific with extensive distribution network and strong brands in China
- Reliable supplier with exceptional customer service globally
- Recognised industry leader in sustainability and environmental excellence

### GROWTH DRIVERS

#### Labelling materials

- Private consumption
- Aging population
- Urban lifestyle
- Higher standard of living
- Shift away from rigid packaging to flexible packaging
- Growth in automated product and logistics labelling
- Development of fastening systems

#### Office papers

- Economic growth
- Increased business services
- Urbanisation
- Establishment of new enterprises

### Strengthened positioning

UPM Specialty Papers has a solid foothold in Europe with its label and packaging materials. The new specialty paper machine at UPM Changshu, China has strengthened UPM's labelling materials positioning in the Asia-Pacific region. In the Americas, UPM Specialty Papers is establishing a stronger local presence by reinforcing its sales force.

Fine papers are an integral part of the business in Asia. UPM Specialty Papers is one of the largest office paper suppliers in the Asia Pacific region. The new specialty paper machine in Changshu enables additional growth in high-quality office papers, a segment in which UPM has been restricted by capacity.

Regular commercial production started in 2016 at the new production line in Changshu. The investment further strengthens UPM Specialty Papers' unique position on the Asian market.

### Strong profitability improvement

UPM Specialty Papers' profitability improved significantly, mainly due to lower costs and higher delivery volumes, more than offsetting a less favourable sales mix and lower paper prices. Compared to the previous year, net change in currencies, including hedges, had a positive impact on profitability. Production ramp-up of the new production line had yet a minor impact on profitability in 2016.

### Accelerating growth in value-added products

The new production line in Changshu accelerates growth through shorter lead times, improved local cost efficiency and enhanced global market coverage of labelling materials.

The new line provides an excellent platform for strengthening partnerships with customers through improved capability to provide a full range of services and new products in Asia Pacific. The line will also improve the mill's energy efficiency.

The new production line is capable of producing a wide range of products. In 2016, production of labelling materials increased gradually. The plan for the UPM Changshu mill site is to develop the more value-added specialty product segments, meanwhile allowing more selective approach in slow growth segments where competition is intense. Production and product portfolio optimisation is expected to support profitability over time.

The new production line will also improve production flexibility for the European and North American markets.

### Product safety strengthened

Product safety is a key requirement for the customers. UPM is committed to only sourcing raw materials from suppliers who demonstrate high standards of responsibility. UPM has been using its own Restricted Chemical Substance List which our suppliers must adhere to and thereby guarantees that none of the substances specified are used in the production processes.

UPM paper is safe to use throughout its entire product lifecycle, allowing direct contact of dry and non-fatty food with papers granted a food contact certificate.

UPM papers are produced to high environmental standards from raw material, which is responsibly sourced using sustainable forest management practices. All products are recyclable.

KEY FIGURES	2016	2015
Sales, EURm	1,273	1,168
Comparable EBIT, EURm	123	55
Capital employed (average), EURm	1,012	1,012
Comparable ROCE, %	12.1	5.4
Personnel on 31 Dec.	1,984	1,738

### EXCELLENT SAFETY RESULTS

UPM Changshu's lost-time accident frequency was 0.4 last year. The year was also exceptionally good for the Jämsä River and Tervasaari mills, which managed to halve all industrial accidents compared to the previous year.

Work safety culture has been continuously developed in Finland and China. At UPM Changshu mill, a safety committee leads all safety practices. Working groups have been established under the safety committee to think about how the safety plans are implemented in practice.

The managers share the best practices with the whole mill during safety talks. All meetings start with discussions about safety issues, and the mill's own weekly newsletter covers safety on a regular basis.

UPM Tervasaari mill manufactures the same labelling materials as UPM Changshu, and the mills have carried out a working culture exchange and cross-auditing. The collaboration has been productive and fruitful and the personnel's feedback excellent.

Read more:  
[www.upmpaper.com](http://www.upmpaper.com)  
[www.upm.com/responsibility](http://www.upm.com/responsibility)

- CAPITALS**
- Capital intensive process industry
  - Engaged high performing people
  - Community engagement
  - Responsible sourcing
  - Chemical pulp with full traceability

### UPM SPECIALTY PAPERS VALUE CREATED

- Cost-efficient production
- Reliable supplier
- Recognised leader in sustainability
- Extensive experience and insight in labelling materials
- Global market leader in labelling materials
- Leading office paper brands in China
- Extensive sales network in Asia Pacific

- CUSTOMERS**
- Label stock manufacturers, commercial siliconisers
  - Converters
  - Merchants and distributors
  - Printers and publishers

- OUTCOMES**
- Safe and certified products
  - Work safety
  - Employment and career opportunities
  - High ethics and compliance with global norms
  - Recyclable products
  - Low emissions
  - ROCE
  - Growth
- SOCIAL IMPACT**
- ENVIRONMENTAL IMPACT**
- ECONOMIC IMPACT**

# UPM Paper ENA

## Significant performance improvement

### OUR DIRECTION

- Maximise cash flow using differentiated commercial strategies and disciplined performance management
- Make use of optimisation opportunities in the extensive low-cost operations

### OUR STRENGTHS

- Reliable supplier with consistently high quality, excellent service as well as a wide product range
- Extensive low-cost operations providing continuous opportunities for optimisation
- Scale and skills in responsible sourcing and manufacturing
- Environmental and technical expertise, consistent product development

### DEMAND DRIVERS

- Advertising spend
- Role of paper in the marketing mix
- Publishers' business model
- Reading habits
- Ways of working and learning

KEY FIGURES	2016	2015
Sales, EURm	4,818	5,056
Comparable EBIT, EURm	280	24
Capital employed (average), EURm	1,964	2,289
Comparable ROCE, %	14.3	1.0
FCF/CE, %	31.0	4.7
Personnel on 31 Dec.	8,664	9,472

### Business development

UPM Paper ENA's systematic performance management enabled a significant profitability improvement in 2016 despite the challenging market environment. Measures such as stringent capacity management, cost reduction and differentiated commercial strategies have been systematically developed and implemented.

In 2016, UPM Paper ENA was able to reduce its variable costs resulting in meaningful savings in energy, pulp and logistics costs. The savings were realised partly due to ongoing profit improvement measures. Realised currency hedges had a negative impact on profitability in the previous year.

The structural decline in demand of graphic papers in Europe continued. The average price for UPM's paper deliveries in euros decreased by 2% in 2016 compared to the previous year, partly impacted also by less favourable development in markets outside the euro area. UPM Paper ENA's deliveries decreased by 4% compared to the previous year. This was offset by operational efficiencies being on high levels and lower variable and fixed costs.

Cash flow was successfully released, primarily as a result of the improved profitability, but also due to asset sales and a reduction in working capital.

### Efficient use of production assets

UPM Paper ENA continued adapting its production to meet profitable customer demand. Timely closures in 2015 and before, combined with additional actions in 2016, improved the asset utilisation rates even further. To secure a leading position as a reliable supplier, machine closures were implemented without endangering UPM's customer deliveries.

In 2016, UPM Paper ENA took several actions to optimise its operations and keep the production efficient. Benefits may extend into 2017 and underpin a continued good performance.

In May, paper production was ceased at the Madison mill in the US. With the closure, UPM Paper ENA reduced 195,000 tonnes of magazine paper capacity and continued to supply profitable demand from the company's European mills.

In July, UPM sold its Schwedt mill. As part of the transaction, the parties entered into a contract manufacturing agreement for newsprint for a transition period which will be ceased at the end of third quarter in 2017. The machine will be converted by the new owner into liner production. The mill's capacity is 280,000 tonnes of newsprint. UPM Paper ENA will continue newsprint production on its remaining newsprint paper machines.

In November, UPM announced plans to permanently close paper machine 3 at UPM Steyrermühl, Austria and paper machine 2 at UPM Augsburg, Germany. With the closures decided in February 2017, UPM will permanently reduce 305,000 tons of its magazine paper capacity. Paper production continues on the remaining cost competitive paper machines at the mill sites.

In 2016, demand for graphic papers decreased by 4% in Europe, a rate of decline that falls well in line with the level in recent years. However, despite the overall decline in demand, the market offers opportunities in certain end uses and segments.

UPM Paper ENA's differentiated commercial strategies paid off with solid growth in certain niches and new products sales in 2016. The business area strengthened its market position and improved customer loyalty. UPM Paper ENA is also an established supplier in the US and enhanced its customer relationships on the market.

### Responsible fibre

Paper is a true Biofore product. It is a completely renewable material and can be recycled efficiently. Products are sustainable over their entire lifecycle, from forest to recycling. UPM Paper ENA has the most comprehensive offering of papers carrying the EU Ecolabel in the industry. To further promote responsible practices, UPM launched its first Responsible Fibre™ product family in 2016, that ensures the products comply with industry's most demanding responsibility criteria.

The wood fibre raw material is sourced from sustainably managed forests. UPM embeds biodiversity as part of modern forest management. Production process complies with the occupational and product safety requirements and minimises impacts, waste and consumption of water and energy.



### TRADEMARK FOR RESPONSIBLE FIBRE

"New Future" is the first range of papers to carry the new "Responsible Fibre" trademark adopted by UPM.

The new trademark innovatively combines UPM's environmental and social responsibility into one cohesive philosophy, which is adhered to throughout the product lifecycle. The criteria cover the following four focus areas: climate, water, biodiversity and social responsibility. The trademark shows that the products carrying the trademark comply with the industry's most demanding responsibility criteria.

At the same time, the branding on the "New Future" product packages has been given an attractive facelift. The technical properties of the paper were also modified to better meet today's printing needs.

Read more: [www.responsiblefibre.upm.com](http://www.responsiblefibre.upm.com)

- CAPITALS**
- Capital intensive process industry
  - Engaged high performing people
  - Community involvement and local presence
  - Virgin fibre from certified sources
  - Recycled fibre
  - Low-emission energy

### UPM PAPER ENA VALUE CREATED

Common operational platform for production, supply chain and sales  
 Customer focus and offerings, wide product range  
 Leading and reliable supplier  
 Efficient and cost-competitive production  
 Environmental and technical expertise  
 Market-based, global sales  
 World class technical service

- END USES**
- Newspaper publishing
  - Magazine publishing
  - Advertising
  - Direct marketing
  - Home and office

- OUTCOMES**
- Safe and certified products
  - Safe working environment and practices
  - Vitality of local communities, employment
  - Operational excellence
  - Recyclable products
  - Responsible sourcing
  - Low emissions
  - Cash flow return on capital employed
- SOCIAL IMPACT**
- ENVIRONMENTAL IMPACT**
- ECONOMIC IMPACT**

# UPM Plywood

## Growth to meet customer demand

### OUR DIRECTION

- Profitable growth through superior customer experience and operational excellence
- Strengthen market position in selected businesses by increasing value and service offering

### OUR STRENGTHS

- Customer insight and superior customer service
- Reliable supplier with consistent high quality
- Leading supplier in demanding end-use segments
- Strongest brand in the market – WISA®

### GROWTH DRIVERS

- Building and construction activity in Europe
- Road transportation in Europe
- LNG carrier and terminal investments globally
- Growing e-commerce

KEY FIGURES	2016	2015
Sales, EURm	444	439
Comparable EBIT, EURm	58	55
Capital employed (average), EURm	259	263
Comparable ROCE, %	22.6	20.9
Personnel on 31 Dec.	2,469	2,469

### Top performance continued

Profitability increased due to lower costs, partly supported by favourable currency impact, and higher delivery volumes. The Finnish birch mill competitiveness improvement programme proceeded, enabling increased production and lower unit costs.

UPM Plywood completed the expansion of the UPM Otepää mill in Estonia in the fourth quarter. The expansion increases the mill's production capacity to 90,000 cubic metres per year. The new biomass boiler enhances the mill's material efficiency and reduces fossil carbon dioxide emissions by 85%. The investment enhances value as it responds to growing demand for high-quality birch plywood products in key customer markets.

The market environment improved gradually during the first half of 2016 in Europe, and demand is estimated to have increased since the previous year. The impact of low-priced imports in the beginning of the year eased in the second quarter. Demand picked up, particularly in birch plywood-related industrial applications, but also to some extent in construction-related end-use segments. Deliveries to demanding industrial end-use applications increased: vehicle floors to trailer manufacturers and insulation material for LNG carriers. Activity in the building and construction industry improved with good results. Market prices decreased at the beginning of the year, but increased slightly during the second half of the year.

### Building and construction

In building and construction, UPM Plywood is the leading supplier in the high-end segments in Europe thanks to an established distribution network. After years of low construction activity in Europe a gradual recovery continued in 2016. UPM Plywood seeks further growth by strengthening distribution in selected emerging markets.

### Vehicle flooring

In transportation equipment, UPM Plywood provides expertise for customers' product and production development, introducing both economic and environmental benefits. Demand growth for trailers is driven by economic activity and a replacement need created after the financial crisis in 2008. Growing e-commerce volumes drives growth in light vehicles by transferring the delivery flows from terminals directly to consumers and thus increasing parcel deliveries. UPM Plywood seeks growth by expanding to new markets and end-use segments.

### LNG carriers

UPM Plywood has seen solid growth in the LNG (liquefied natural gas) segment in past years. WISA birch plywood is ideal material in LNG vessels due to its strength and stability at extremely low temperatures. UPM Plywood provides on-time deliveries of certified quality through long-term contracts. UPM Plywood secures its leading position and seeks growth through extending its offering into related applications with same technology.

### Plywood from sustainably managed forests

Forest certificates guarantee that the wood raw material is from sustainably managed forests with legal logging operations. All wood raw material is used either in plywood production, as raw material to other products or in energy generation. Plywood is increasingly used because it is a cost-effective material, a renewable resource and carbon storing product.

Integrated plywood and renewable energy production enhances material efficiency and reduces fossil fuel emissions at mill sites. Biomass boilers produce most mills' thermal energy using the production by-products as fuel. In addition, plywood manufacturing consumes less energy compared to e.g. aluminium, plastic or steel.

### INVESTMENT TO EFFICIENCY

Investment in the Otepää mill is improving production processes and material efficiency in many ways.

The new, highly automated and well-protected production lines improve work efficiency and ergonomics as well as reduce the risk of work-related injuries and illnesses. Production capacity has increased by approximately 90%.

The old boiler that was partially reliant on oil burning has been replaced with a new biomass boiler. The new boiler uses plywood production by-products such as bark, chips and dust as fuel, thus improving material efficiency. Switching from oil to renewable energy reduces fossil CO<sub>2</sub> emissions by 85% and lowers energy costs.

As a result of the expansion, the team at the mill grew by one third as approximately 40 new employees were hired. The project has also provided work for several local companies over the past year and a half. Out of over 100 suppliers involved in the project, approximately 80% of contracts have been concluded with local companies.

Read more:  
[www.wisaplywood.com](http://www.wisaplywood.com),  
[www.upmbiofore.com](http://www.upmbiofore.com)

- CAPITALS**
- Moderately labour and capital intensive industry
  - Engaged high performing people
  - Community engagement
  - Wood from certified sources with full traceability



- END USES**
- Construction
  - Vehicle flooring
  - LNG shipbuilding
  - Parquet
  - Other industrial manufacturing

- OUTCOMES**
- Employment
  - Vitality of local communities
  - Work safety
  - Safe and certified products
  - Carbon storing products
  - Renewable energy
  - Low emissions
  - ROCE
  - Growth
- SOCIAL IMPACT**
- ENVIRONMENTAL IMPACT**
- ECONOMIC IMPACT**

# Innovation and R&D

## Focus on circular economy

### OUR DIRECTION

- Innovations are at the forefront in the creation and development of new products that can be used to replace non-renewable materials with renewable, recyclable and low-impact alternatives and provide resource efficient alternatives for the future.
- The aim of UPM's R&D programmes and business development is to create new technologies and products, provide support to and ensure the competitiveness of its businesses.
- By co-operating with selected value chain partners UPM aims to increase its speed, agility and effectiveness.

### TOWARDS A CLOSED CYCLE

The China More with Biofore research programme seeks to improve the environmental performance and energy efficiency of mills through new technologies. UPM Changshu paper mill is a pilot in a 2-3-year programme to improve the resource efficiency including water and energy use at the mill.

The goal is to reduce emissions in China, but at the same time UPM is looking for new solutions that can be applied at other mills around the world. The programme also complements the strict environmental policy implemented by the Chinese authorities.

There are two separate resource projects going on at Changshu. The goal of the first project is to reduce the water consumption of the three paper machines. Another target for development is to improve the efficiency of energy use by reducing carbon dioxide and particle emissions from the power boilers.

In the long term, the aim is to move towards a closed-cycle mill. Reducing fresh water usage also decreases emissions. UPM will optimise water use by increasing water recycling in internal mill processes and only using clean water if absolutely necessary. The ultimate goal is that the water exiting the mill is clean and has no environmental impact. All in all, the programme offers excellent support for UPM's long-term responsibility targets.

Read more:  
[www.upm.com/responsibility](http://www.upm.com/responsibility)  
[www.upmbiofore.com](http://www.upmbiofore.com)

In 2016, UPM spent EUR 46 million (63 million) on research and development work equating to 2.7% (5.3%) of UPM's operating cash flow. The focus was on new technologies and developing businesses. On top of the direct R&D expenditure of approximately EUR 40 million (37 million), the figures include negative operating cash flow and capital expenditure in developing businesses.

UPM has a global network of research centres to support both new and existing businesses and their development goals.

### Research projects

Circular economy is an integral part of UPM's business. Resource efficiency is at the core of the Biofore strategy. Product stewardship and ecodesign approach covers the entire value chain from the design stage to end products and their reuse.

UPM's side stream efficiency research (SEFF) is looking for solutions to better utilise the side streams of integrated pulp and paper mills; sludge, ash, green liquor dregs, various rejects and waste heat. The aim is to reduce costs and increase the value of side streams by finding new business opportunities with partners.

Fertiliser development and nutrient recirculation is one of the possible circular economy solutions. UPM established a joint project with fertiliser and crop nutrition expert Yara to develop nutrient recycling. The project concentrates on the possibilities for the agricultural reuse of nutrients retrieved from the sludge originating from the pulp and paper mill's effluent treatment plants and the ash from the incineration process.

Other studies relate among others to ash product development for construction applications and new ways to reuse green liquor dregs. The results are also used in UPM's Zero Solid Waste programme. The initiative develops smart and sustainable solutions, in which excess materials circulate and generate value.

UPM's fibre ecosystem project aims to study new fibre processes for enhanced product properties. The new product possibilities address global megatrends and sustainability demands. The research is done in co-operation with customers, partners and research organisations along various value chains.

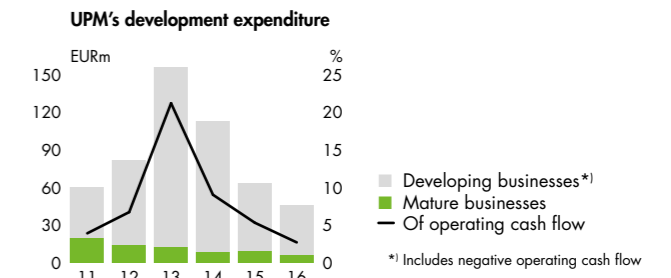
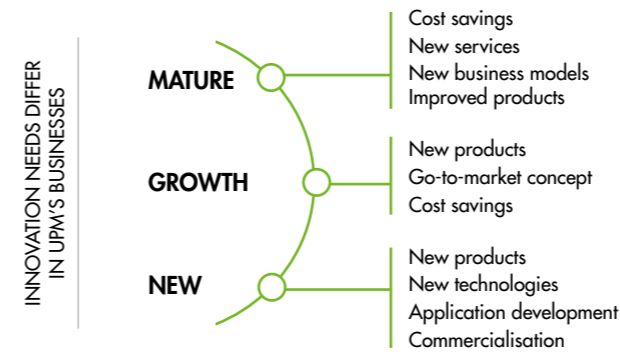
### Wide-scale collaboration

UPM is one of the founding members of the industrial consortium, part of the European Joint Undertaking on Bio-based Industries (BBI). This Public Private Partnership (PPP) aims to trigger investments and create a competitive market for bio-based products and materials. For UPM, the PPP is an important funding element for speeding up the implementation of future investments.

UPM is a shareholder in the Finnish CLIC Innovation Oy, which focuses on bioeconomy and cleantech research. The cluster's research programmes focus on bioeconomy as well as energy and environmental research, thus supporting UPM's internal R&D activities.

In 2016, UPM received approximately EUR 1.0 million (1.4 million) from Tekes (the Finnish Funding Agency for Innovation) for its research projects. These projects were carried out in co-operation with research institutes, universities and other companies.

UPM works together with a wide network of universities, research institutes, technology suppliers and startups to develop new solutions and get to the market faster, especially in new businesses.



UPM actively protects inventions and brands with intellectual property rights. UPM manages and uses its patents, trademarks and other intellectual property rights throughout the world. Protected innovations and high level risk management is an integral part of the business model throughout UPM. UPM is also actively seeking partners and licensing opportunities to develop new technologies and solutions for its customers. UPM leaves approximately 350 patent applications annually. For example in Finland, UPM was granted over 50 patents in 2016, more than any other Finnish company.

### Biocomposites create sustainable value

UPM Biocomposites develops, manufactures and sells high quality composite products for a wide range of consumer and industrial applications.

UPM ProFi Deck range is one of the leading composite decking brands in Europe. Through patented recycling technology, UPM Biocomposites recovers the cellulose fibres and polymers found in label material waste and gives them a second life. Each square metre of UPM ProFi Deck contains 10 kg of label waste.

UPM Formi is the engineered range of pure cellulose and virgin polymer compounds suitable for various applications from furniture to consumer electronics. Its carbon footprint is up to 50% lower compared to traditional plastics.

### Biochemicals offer an alternative to fossil-based solutions

UPM Biochemicals offers and develops innovative, sustainable and competitive wood-based biochemicals. It is currently focusing on four product categories: chemical building blocks, lignin products, biofibrils and biomedical products.

For example, bio-based chemical building blocks can be used to replace oil-based chemicals in plastic production. Wood-based lignin can for instance be used to manufacture bio-based resins to replace fossil-based resins.

Biofibrils are cellulose-based micro and nanofibril products that can be used for shaping and reinforcing different materials. They can also be used in new biomedical applications. GrowDex® is a proprietary hydrogel for cell culturing in medical research and other applications.

UPM Biochemicals has already commercialised the first lignin applications and biomedical products. It is actively developing and testing industrial applications with its partners in order to create large scale industrial concepts.

UPM's ValChem project, started in 2015 and funded by the European Union, proceeded in 2016 as planned. The aim of the project is to demonstrate the technical and economic viability of an integrated biochemical process, covering the whole value chain from wood raw materials to a selected platform-chemical and lignin-based performance chemicals.

Read more on circular economy at UPM and Zero Solid Waste programme on p. 68.

In 2016, the main focus areas in UPM's People Strategy were aiming higher in business performance and value-based and inspiring leadership, as well as continuously challenging the status quo to develop the company.



**87%** of permanent employees had a personal performance review with their managers



**79%** favourable responses to Employee Engagement Survey's diversity question

# Our people

Encouraging growth



Developing a safe and inspiring working environment in which people can participate and grow is important for UPM. UPM aims to provide an environment in which employees are capable of achieving business success. UPM encourages its employees to pursue professional growth and supports them in learning and developing their skills further.

The company uses the 70/20/10 model based on the assumption that 70% of learning takes place on the job, 20% comes from learning from others and 10% comes from development programmes.

UPM systematically uses a performance management process (PPR) to set individual strategy-related targets and create development plans for all employees globally. The PPR provides an opportunity for both managers and employees to give and receive feedback on performance and behaviour based on UPM values.

Over the past few years, UPM has developed its performance appraisal process by emphasising managers' roles in leading performance and giving feedback. Managers are expected to focus on performance management and guiding their team members to reach agreed targets. UPM's target is that all employees have a target setting and development plan by 2030.

In 2016, UPM started to train its key employees on human rights and continued its human rights assessment by initiating a global evaluation focusing on activities at UPM sites, community relations and local sourcing.

### Engaging employees to develop the workplace

The UPM Employee Engagement Survey (EES) invites all employees across the company to evaluate different aspects of the working environment every year. The survey measures development using three main indices: Employee Engagement, Manager Effectiveness and Occupational Health and Safety (OHS).

In 2016, 83% (79%) of UPM employees responded to the survey, which illustrates a high level of willingness to participate in the development of UPM as a place to work.

All UPM-level indices improved. The Engagement Index has increased three percentage points for three consecutive years. The Engagement Index increased to 69% (66%), but is still behind our 2030 target to be in the top quarter of companies. Favourable scores in the OHS Index increased to 81% (80%). Favourable scores in the Manager Effectiveness Index have steadily improved over the years (from 76% in 2015 to 78% in 2016), and remain at a high level.

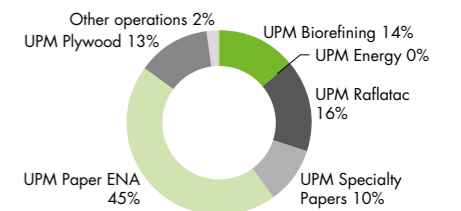
All EES items are showing a positive trend and the scores for questions regarding our future and vision in particular have increased significantly. The EES provides an opportunity for annual monitoring of long-term trends and the progress of agreed development activities. The progress is followed up and evaluated in order to define further improvements both at organisational and team level. UPM-level focus areas for development are diversity and inclusion as well as the growth and development of UPM employees.

### Apprenticeship combines learning and working

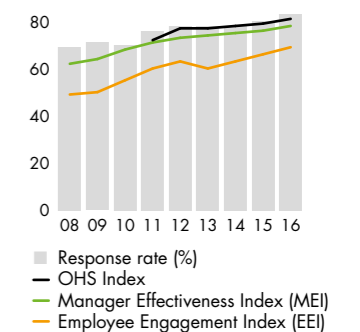
UPM's apprenticeship programmes in Finland and Germany are a way to ensure the required level of expertise for future employees. The programmes are typically targeted at shop floor positions in production or maintenance. UPM conducts the programmes together with regional vocational schools. In Finland, some 100 people have been included in the apprenticeship programmes annually. Most of the graduated apprentices have continued to work at UPM.

UPM has also launched a UPM Bioforce Graduate Programme for young professionals. The programme will begin in the autumn of 2017.

UPM's personnel by business area 2016



Employee Engagement Survey (EES) results, Trend 2008-2016



PERSONNEL BY COUNTRY

31 Dec.	2016	2015	2014
Finland	7,347	7,464	7,855
Germany	4,262	4,591	4,586
Russia	793	798	787
United Kingdom	752	763	1,098
Poland	608	535	499
France	505	585	785
Austria	483	518	549
Estonia	250	217	204
Spain	105	109	109
Italy	52	55	61
Turkey	42	42	40
Belgium	34	31	28
Ukraine	26	27	25
Sweden	25	24	27
Other Europe	80	79	86
China <sup>1)</sup>	1,790	1,546	1,424
United States <sup>2)</sup>	970	1,070	1,087
Uruguay	580	573	565
Malaysia	140	122	175
South Africa	94	78	67
Mexico	92	81	50
Brazil	56	58	89
Australia	50	50	61
India	40	42	39
Rest of the world	134	120	118
<b>Total</b>	<b>19,310</b>	<b>19,578</b>	<b>20,414</b>

<sup>1)</sup> Incl. Hong Kong  
<sup>2)</sup> Incl. Madison 50%

## Developing empowering and engaging leaders

UPM aims to have inspiring leaders who empower and engage employees at all levels. We strive to lead by our own example, in accordance with UPM values and with integrity. Our values guide and support us in our daily actions – Trust and be trusted; Achieve together; Renew with courage.

UPM continuously develops leadership capabilities and management teams. The development programme portfolio is created to support aspects of leading self, people and the business. Topics such as self-leadership, coaching capabilities, innovation and leading in complexity are integrated into various development activities.

In 2016, the theme of aiming higher in business performance and leadership was integrated into strategy communication and leadership programmes. UPM continued to support a coaching leadership style and the use of various tools for feedback on behaviours and performance. The aim is to improve dialogue and the feedback culture within the company.

UPM also continued its mentoring programmes as a valuable tool for developing leaders. Investments in training and the renewal of front-line leadership development capabilities continued globally. In Finland, the Future Supervisor Programme, which brings new supervisors to the company, was ongoing.

UPM wants to develop its working environment so that it is diverse and inclusive. It is important to employ people with different competences, backgrounds and experiences and of different genders, ages and nationalities to bring multiple views and improve decision-making and business success.

In 2016, UPM publicly committed to strengthening its commitment to a diverse and inclusive workplace by signing the Finnish Diversity Charter. It describes how a company can promote equal opportunities in the workplace.

UPM focused strongly on training on the renewed Code of Conduct, including discussions on inclusive behaviour in the working environment. UPM continued to review the status of diversity in businesses and functions and integrated inclusion into key leadership development programmes to improve performance and innovation. The implementation of the diversity initiative will continue in 2017.

## UPM promotes active participation

At the end of 2016, UPM had 19,310 employees working in 45 countries. UPM promotes local leadership at the main production sites, where 96% of management team positions are held by locals. Overall at UPM, approximately 0.2% of employees were on international assignments at various levels of the organisation in foreign countries.

As a multinational company, UPM complies with international, national and local laws and regulations and respects international agreements concerning human and labour rights and freedom of association.

UPM abides by legally binding collective agreements. UPM does not collect information on or report on its employees' union membership at a global level due to differences in national legislation in the various countries. The estimated percentage of employees covered by collective agreement mechanisms was 71% in 2016.

UPM promotes active employee participation and consultation, organised in accordance with international and national rules and regulations. UPM respects the privacy of employees and promotes equal opportunities and objectivity in employment and career development.

To encourage an open, international dialogue, UPM has a co-operative body, the UPM European Forum, which focuses on issues related to changes within the company and the business environment in general. The forum organises regular meetings for employee representatives from business units operating in Europe.

### THE RIGHT TO ACCESS SAFE DRINKING WATER

UPM promotes access to safe drinking water, proper sanitation facilities and good hygiene by implementing the WBCSD's WASH at the Workplace Pledge.

By signing the WASH Pledge, companies commit to providing access to safe water and sanitation for all employees in premises. As the first phase of the three-year implementation plan, UPM conducted the WASH Pledge Self-Assessment survey in all production sites in 2015. The survey concerned the local water, sanitation and hygiene conditions for employees at the sites.

In 2016, UPM continued the evaluation for its sales network and terminals. So far, the survey results have proved that UPM is compliant with the WASH Pledge requirements although some areas of improvement were identified. UPM renovated a washroom and installed some new showers for men and women at the Raflatac Johor terminal in Malaysia.

"We provide companies with an asset of tools that brings together international best practice and standards set by recognised bodies such as the World Health Organisation about what a healthy work place should look like," explains Associate Sara Traubel from the WBCSD.

Traubel thanks UPM for the very structured approach it has taken to performing the self-assessments, addressing the gaps and communicating internally about the initiative and the need to address WASH. UPM will continue the programme by assessing its forestry and wood sourcing facilities in 2017.

Read more: [www.upm.com/responsibility](http://www.upm.com/responsibility)



### ENERGY AND CURIOSITY AT THE BOOT CAMPS

When seeking out new innovations, bringing together people with different backgrounds and skill sets creates the best circumstances for success and fresh results. UPM's new "Boot Camp" innovation programme brings together UPM employees from different businesses and functions.

The workshop lasts for one or two days, during which time the employees team up to tackle topical development projects. The Boot Camp participants are chosen based on their relevant skill sets and their interest in development work.

The actual workshops are very informal – the group decides on the goals and methods together. After the workshop, the groups pitch their ideas to the judges and a winner is chosen from among them. The panel of judges consists of experts and members of the management.

In 2016, approximately 150 UPMers participated in the Boot Camps. Some of the ideas generated at the Boot Camps were refined within initial business concepts and then developed further. The aims of the internal Boot Camps are to work on real business challenges and to develop the ways in which we work.

Read more: [www.upm.com/innovation](http://www.upm.com/innovation), [www.upmbiofore.com](http://www.upmbiofore.com)

## Rewarding and recognising good performance

UPM offers rewards and recognition with an emphasis on high performance. UPM has a total compensation approach consisting of a base salary, benefits and incentives, which are determined by UPM's global rules, local legislation, general agreements, local market practice, the level of the position and individual performance. Gender, race, age and nationality have no role in the definition of salaries and wages. The differences between male and female average salaries do not differ a lot and vary to both directions, assessed for salaried employees in UPM's main countries of operations.

Intangible recognition is included in the total reward portfolio, which means that UPM provides, for instance, a safe and healthy working environment, interesting and meaningful work and excellent leadership and career opportunities. Individual, team and business performance are criteria for compensation planning and decisions.

All UPM's employees belong to a unified annual Short Term Incentive (STI) scheme. The plan includes group- and business-level targets and personal and/or team performance targets.

EBITDA is one of the key financial indicators for the group and business-level targets. The annual incentives paid in 2016 for the 2015 STI plan were EUR 52.9 million and the estimated amount of annual incentives for the 2016 STI plan is EUR 59.1 million. For significant individual or team successes, there is a separate Achievement Award system in place.

UPM has two long-term incentive plans: a Performance Share Plan (PSP) for senior executives and a Deferred Bonus Plan (DBP) for other key employees. Since 2011, when the plans have been launched annually and approximately 670 employees have been covered by the plans. In both plans, the earning of shares is subject to the achievement of predetermined criteria. Under the plans, UPM shares are awarded based either on group/business area-level performance or total shareholder return. More information about long-term incentives can be found on [www.upm.com](http://www.upm.com) in the Investors section, under Governance, in the Remuneration Statement.

## Supporting re-employment

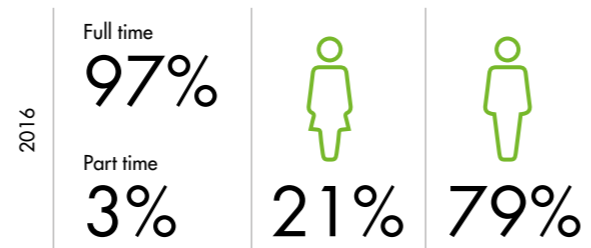
The central elements of UPM's activities regarding permanently closed operations and restructuring are typically retraining, re-employment and relocation within the company, supporting entrepreneurship as well as severance payments. Active measures promoting employment and retraining are carried out in close co-operation with various authorities and other third parties.

In restructuring situations, UPM follows local labour laws. In Finland, the employer's minimum notice period is determined in the Finnish Employment Contract Act and collective agreements, based on the length of employment: for employment of less than 12 years, the notice period varies between 14 days and four months, and for employment exceeding 12 years it is six months.

Similarly, in Germany the minimum notice period is determined by the German Civil Code and adhered to by collective agreements. It is calculated based on the length of employment: from zero up to 20 years, the notice period varies accordingly from four weeks to seven months. In China, the minimum notice period is 30 days and is described in local legislation.

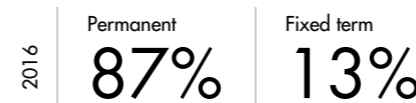
In 2016, UPM permanently closed Madison paper mill in the US. UPM also sold Schwedt mill in Germany. In Finland, UPM adjusted operations at the UPM Tervasaari mill after the tenant's announcement to close down its operations at the mill site. UPM personnel was reduced by approximately 400 people by the end of 2016 as a consequence of these measures.

In November, UPM announced plans to permanently close two paper machines at UPM Steyermühl and UPM Augsburg in Austria and Germany.



UPM PERSONNEL IN FIGURES	2016	2015	2014
Turnover %	9.0	10.5	10.9
Turnover% (voluntary)	3.2	3.3	4.8
Average age of personnel	43.7	43.6	43.7
<b>People development</b>			
Average training hours <sup>1)</sup> (hours/employee)	13	14	15
<b>OHS figures, UPM workforce</b>			
Lost-time accident frequency	3.7	3.9	4.4
Total recordable injury frequency	9.3	10.6	11.6
Absenteeism %	3.4	3.7	3.4
Number of occupational diseases	12	6	n/a
<b>OHS figures, contractors</b>			
Lost-time accident frequency	6.2	5.5	6.5
Total recordable injury frequency	7.5 <sup>2)</sup>	n/a	n/a

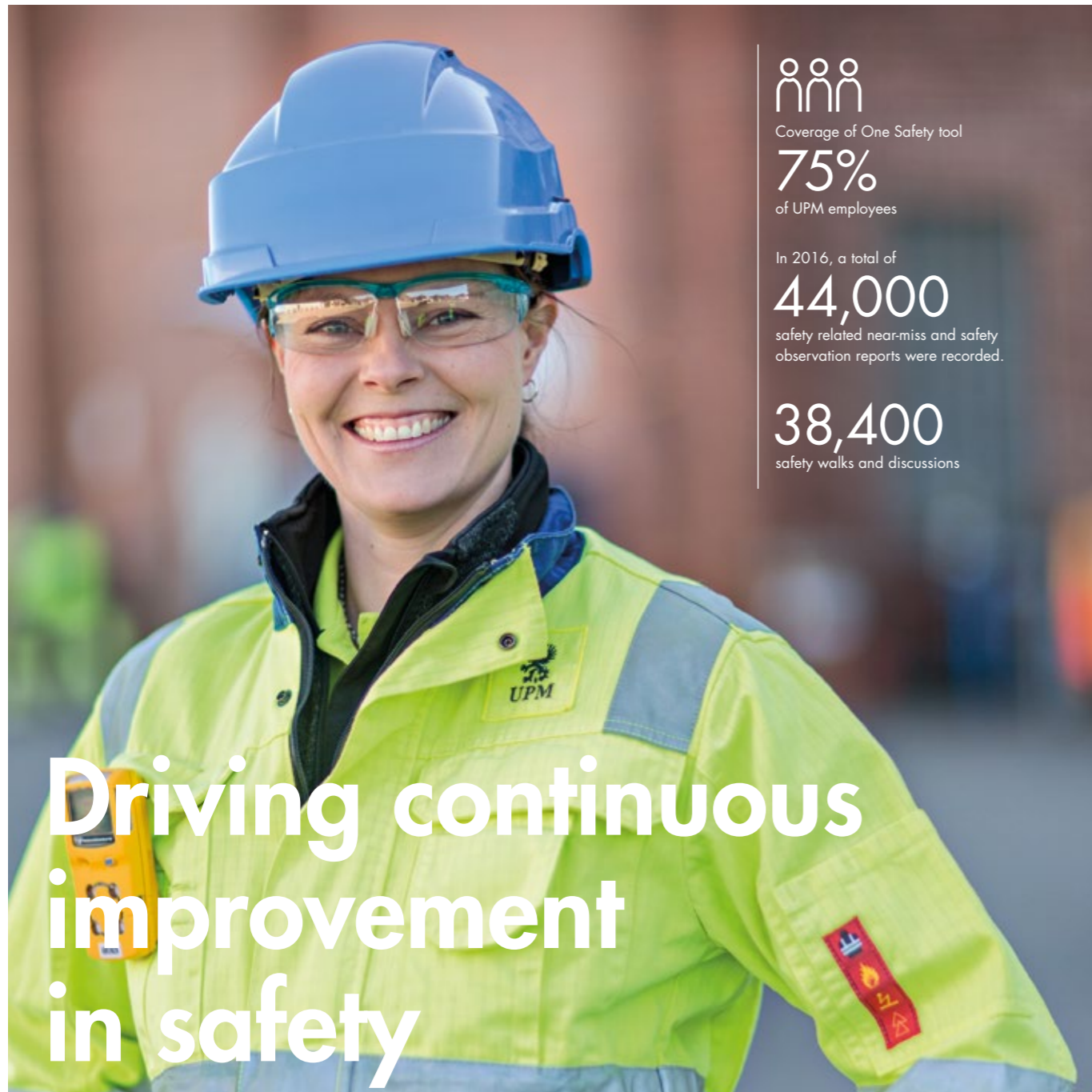
<sup>1)</sup> Reflects active employees  
<sup>2)</sup> Figure for last 9 months of the year, excl. Germany and Austria



69%

Employee engagement index increased but is still behind our target to be among top quarter companies





# Driving continuous improvement in safety



Coverage of One Safety tool

**75%**

of UPM employees

In 2016, a total of

**44,000**

safety related near-miss and safety observation reports were recorded.

**38,400**

safety walks and discussions

Safety is an essential part of UPM's activities and business management system. Equal safety requirements are applied to all employees, visitors and contractors working at UPM's premises.

In 2016, UPM's lost-time accident frequency (LTAF, the number of lost-time work accidents per one million hours of work) was 3.7 (3.9). The TRIF (total recordable injury frequency) improved, standing at 9.3 (10.6). The TRIF includes LTA cases as well as modified duty cases and accidents requiring medical treatment. The safety of the external workforce improved as well. UPM's contractors had 76 lost-time accidents (92 in 2015). The figures show a positive development in terms of safety at UPM.

Unfortunately, there were two fatal accidents in 2016: one involving a UPM employee at a Finnish paper mill and another involving a contractor in UPM operations in Uruguay during forestry work. Thorough root cause analyses have been conducted and key learnings have been shared to avoid any future severe accidents, with a view to our continuous target of zero accidents.

Good safety performance is recognised with company-wide safety awards. The 2016 UPM Safety Award for the best improver was given to UPM Fray Bentos pulp mill in Uruguay.

In April, UPM celebrated the company's fourth Safety Week in connection with the World Day for Safety and Health at Work organised by the International Labour Organization (ILO).



**3.7** | **6.2**

Lost time accident frequency for employees and contractors

### UPM's safety journey continues

UPM's management system enforced by the "Step Change in Safety 2012-2014" initiative also forms a solid foundation for future years. It means a systematic approach, by means of audits and reporting, as well as a preventive and engaging safety culture. The positive trend continued with the annual employee engagement survey (EES): the Occupational Health and Safety score increased 1 percentage point compared to the previous year's result.

All 13 UPM safety standards were updated in 2016. These standards describe the minimum requirements that apply to all UPM personnel as well as contractors working at UPM premises or under UPM supervision.

UPM safety audits were conducted in production units within all business areas. The purpose of these audits is to evaluate unit operations against agreed OHS criteria (UPM safety standards, guidelines and legislation). Based on audit results, most of the units have been able to further improve safety compared to the results of previous audits.

### One Safety – a global UPM safety tool

Regardless of severity, UPM employees and contractors are encouraged to report all near misses and to make safety and environment observations. In 2016, UPM introduced a global reporting tool, One Safety, for all UPMers and contractors. The reporting tool covers environment, health and safety, product and process safety as well as security. (Read more on the right).

### Quarterly health themes

To support the wellbeing of its personnel, UPM is working in close co-operation with employees and external occupational health organisations.

All UPM employees in Finland and Germany are represented by joint employer-worker health and safety committees as defined in local legislation. The aim of these location-based committees is to monitor and advise on occupational health and safety issues and programmes.

In 2016, UPM continued with its quarterly health themes. The aim is to support the continuous improvement of employees' health, quality of life and ability to perform. In 2016, themes related to good sleep, weight and nutrition, and intoxicants (e.g. alcohol and tobacco). Additionally, free-time accidents prevention, such as safe work practices at home and safe winter or summer sports were covered.

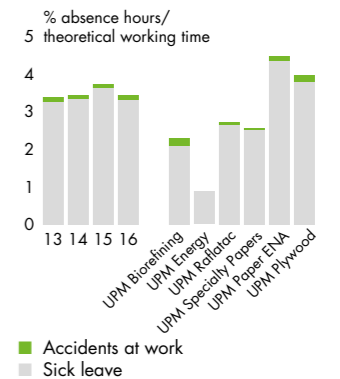
Several health and wellbeing initiatives were launched at various UPM sites and businesses globally with positive results. Thanks to a campaign at the plywood mills in Finland, free-time accidents were halved.

Health and wellbeing coaching, which started in 2014, continued at different businesses and sites in Finland.

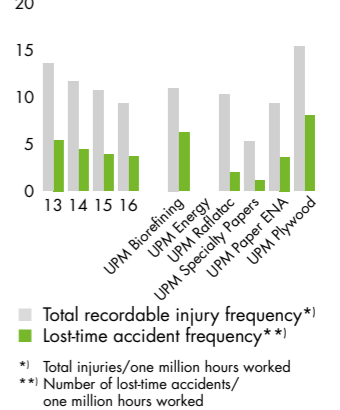
To improve wellbeing at work, UPM is monitoring employees using several metrics on a yearly basis. These indicators include the annual employee engagement survey (EES), safety and absence indicators and occupational health checks aligned with national legal requirements.

There is no high incidence or high risk of disease among UPM employees related to their occupation. UPM analyses and manages the opportunities and threats related to healthy working environments. In almost all of the production sites, there can be a risk of disease related to employees' occupation, even when adequate protection is in use. Employees can be exposed to noise causing auditory trauma or dust and chemicals causing occupational dermatitis or asthma. To minimise health hazards UPM has standardised processes, for example for risk assessment, personal protective equipment and chemical management. In addition, occupational health workplace surveys are conducted to assess the working environment. The majority of UPM's employees work in areas with no or only minimal risk of HIV/AIDS, malaria or tuberculosis. Instructions and support are available for employees travelling to critical areas.

Absenteeism due to sickness and accidents at work, UPM workforce



Total recordable injury frequency and lost-time accident frequency, UPM workforce



### PROACTIVE OBSERVATION PREVENTS ACCIDENTS

UPM's new global reporting tool, One Safety was successfully implemented at most UPM sites in 2016. The aim is to have a common, UPM way of managing safety and environment-related operations, and to increase our commitment to safety and the environment.

According to studies, proactive observation is the best way to prevent and reduce accidents. With the new global way of working, UPM wants to encourage employees to pay attention to their working environment, record potential deficiencies and report incidents through the system.

The main features of the tool are the recording of observations, near-miss situations and accidents, managing investigations and corrective actions for incidents, preparing risk assessments and reliable reporting. Proactive observation is also promoted during regular safety walks.

External contractors working at UPM premises can also record their observations to the system. With the tool, UPM is also able to report and following-up the contractor TRIF. The system also includes risk assessments related to work permits and various tasks. Thanks to One Safety, there has also been an increase in observations related to environmental risks.

Read more: [www.upm.com/responsibility](http://www.upm.com/responsibility)



To ensure long-term engagement, UPM continuously works with its diverse range of stakeholders to understand their specific expectations. It is equally important to communicate and discuss the company's targets, operating principles, values and the challenges it faces within the business environment. Well-functioning stakeholder engagement is bringing stability, predictability and competitive advantage to the company.

# Our stakeholders



2030  
TARGETS



Ensuring local commitment, enhanced co-operation, stakeholder engagement and sustainability initiatives



## Stakeholder engagement brings stability to operations

As stakeholders view UPM primarily as an economic operator, financial success, stability, future outlook and growth are fundamental themes for most stakeholders. In addition, UPM's environmental performance and social responsibility play a significant role in UPM's licence to operate and affect the long-term success of its businesses.

UPM aims to provide a balanced view of the economic, environmental and social aspects of its business activities, recognising, however, the varying focus of expectations of different stakeholders.

### Stakeholder engagement is part of the strategy process

For all businesses, stakeholder mapping is an essential part of stakeholder relations, along with the systematic gathering of feedback and views from different sources. This way, UPM aims to ensure that sufficient consideration is given to stakeholder needs during the strategic development and decision-making processes.

Every year, UPM updates a materiality analysis (page 14) that highlights the most important responsibility issues for UPM and its stakeholders. The analysis is based on stakeholder feedback and the company's risk mapping.

The Stakeholder Relations function, which is represented in all businesses, is responsible for the global leadership and co-ordination of activities, while UPM's businesses are responsible for local activity (read more on the business activities on p. 51). Best practices are regularly shared.

UPM's most important stakeholders are customers, investors and financiers, employees, suppliers, local communities, authorities and key decision makers, the media and non-governmental organisations. The approach to each varies based on business focus, region and individual stakeholder groups.

The UPM Code of Conduct sets the standards of responsible behaviour towards stakeholders for each and every UPM employee. The standards cover topics relating to legal compliance and disclosure, conflicts of interest, anti-corruption and anti-bribery, HR practices, human rights questions and environmental matters.

Dialogue with stakeholders helps identify risks and improves understanding of key challenges and opportunities in the company's operating environment. All businesses carry out customer surveys. The level of stakeholder engagement is also measured by several indicators and enquiries such as the number of customer enquiries, contact with the mills, forest department or investor relations, number of job applications and share price development.

## UPM SUPPORTS REGIONAL TECHNICAL EDUCATION IN URUGUAY

A brand new regional technological university, the first of its kind in Uruguay, has been established in Fray Bentos. The technological institute will have the capacity to accommodate 2,000 students from the south-western coastal region of Uruguay.

UPM signed an important co-operation agreement with the Technological University of Uruguay (UTEC) in February 2015. The aim is to advance technical skills and engineering, particularly in mechatronics, renewable energy, transport and logistics. By 2017, UTEC plans to expand its educational courses in biomedical engineering and IT. With the co-operation, UPM will significantly increase the competence pool of qualified workforce and provide training opportunities for UPM professionals to expand their experience as well as improve the recognition of mechatronics.

Uruguay's education system is concentrated in the capital. Montevideo offers three times more educational opportunities than other areas. Investment in regional education creates further development opportunities, enhancing the overall competitiveness and pool of skilled people within Uruguay's forest industry in the future.

Students will be able to participate in internships and hands-on training in the agro-industrial sector. Both parties encourage UPM technicians and professionals to participate in the courses. Research projects and product development in co-operation with companies is a key area for this university and for UPM. This co-operation also includes student lectures led by UPM experts.

The founding of the Technological University of Uruguay is part of UPM's Biofore Share and Care programme. The programme focuses on projects that are relevant to both UPM's business and responsibility goals. The focus areas are: Reading and learning, Engaging with communities, Responsible water use and Boosting bioinnovations.



Read more:  
[www.upm.com/responsibility](http://www.upm.com/responsibility),  
[www.upmbiofore.com](http://www.upmbiofore.com)

**Activity in 2016**

The 2016 materiality analysis highlighted issues such as compliance and ethics, competitiveness, occupational health and safety, employee engagement, sustainable forest management, product stewardship and climate change as the most important issues for UPM's stakeholders.

The Code of Conduct was revised during the year and the Board of Directors approved the new Code of Conduct in February 2016. The revised Code of Conduct includes new sections on trade sanctions, data privacy, responsible sourcing and interaction with stakeholders.

Implementation of the Code was the most important internal group-wide initiative. The Code was discussed in management teams on all levels. Targeted training sessions were organised for special groups. By the end of the year, 97% of active UPM employees had completed a Code training.

Sustainable forestry issues were highlighted during the year and intense discussions were had with environmental organisations, certification bodies and authorities.

Customer enquiries focused on topics such as product safety, ecolabels and the origin of raw materials.

The majority of direct feedback from stakeholders focused on the local effects of UPM's operations, such as noise or odour. UPM provided further information in each situation and the potential disturbances connected to the mill stand-stills were communicated to the communities in advance.

**Competitiveness at the forefront of public affairs**

Through public affairs work, the company aimed to foster the necessary prerequisites for operations, particularly in Finland, Uruguay and China. UPM co-operated with a number of trade associations on these topics, the most important being the Finnish Forest Industries Federation (FFIF) and the Confederation of European Paper Industries (CEPI). During the year, FFIF resigned from the Confederation of Finnish Industries.

Within the EU, UPM promoted competitive and consistent energy and climate policy regulation. Influencing the future prerequisites and markets within the advanced renewable fuels sector was one of the key themes of the year. In November, the European Commission submitted a proposal for the renewable energy directive for 2021–2030. The proposal favours biofuels, such as UPM Bioverno, which significantly reduce CO<sub>2</sub> emissions and are based on non-food raw materials as well as waste and residues.

In Finland, UPM continued to discuss topic areas within the Finnish operating environment that impact the competitiveness of the forest industry in Finland. The same consistent messages were also delivered to local decision makers. The topics are transparently presented on UPM's web page [www.kilpailukyky.upm.fi](http://www.kilpailukyky.upm.fi) (in Finnish).

UPM was actively involved in the stakeholder processes related to sustainable forestry. The round table forum initiated by the Ministry of Agriculture and Environment and FFIF's Forest Environment programme focuses on maintaining the biodiversity of forests as part of sustainable forestry practices.

For its part, UPM promoted means to increase the amount of wood on the Finnish markets. The forest gift deduction on the wood income tax will be implemented in 2017 and will make the transition of forest properties to the younger generation smoother, prevent fragmentation of forest estates and activate the wood market.

In Uruguay, UPM started discussions with the Government of Uruguay regarding the development of logistics infrastructure in the country. Railroad and road connections are a critical challenge for establishing a large scale industrial operation in the Uruguayan inland and connecting it to a deep sea port.

**Co-operation on responsibility issues improves prerequisites for operations**

For environmental and responsibility issues, UPM's stakeholder engagement activity was aimed at maintaining consistent quality in operations and products, along with securing the prerequisites for future activities. Globally, UPM continued its active co-operation with local permit authorities.

UPM participated in the UN Global Compact LEAD group, which represents the world's leading companies to promote sustainability through innovation and actions.

Co-operation also continued on a voluntary basis with a wide range of stakeholders relating to ecolabels, standards and standardisation frameworks, as well as nature conservation.

With regard to ecolabels and standardisation issues, UPM collaborated with FSC®, PEFC™, the German Blue Angel, the Swan label, The Finnish Key Flag symbol, ISCC and the EU Ecolabel. Co-operation was particularly active with FSC® and UPM significantly increased the share of FSC® certified wood.

The company also engaged in several joint initiatives with different parties. On environmental issues, co-operation continued with BirdLife Finland and Vida Silvestre in Uruguay. In China, UPM participated in the China Sustainable Paper Alliance (CSPA). The purpose of the alliance is to promote responsible sourcing and sustainable forestry in the Chinese forest industry.



**LOGGING OPERATIONS ON ÄRJÄNSAARI ISLAND CAUSED CONCERN**

Logging operations on the UPM-owned Ärjänsaari Island in northeastern Finland, caused concerns at the beginning of the year. The concerns were linked to the island's recreational value, the potentially increasing storm damage and preserving the local history.

UPM engaged local stakeholders throughout the planning process and modified the forest management plan, approved by the authorities in 2014, according to feedback. However, the concerns were only expressed at the start of the logging operations in January. Felling in the commercial forests in the inner parts of the island received a lot of attention in the local media, on social media and discussion forums.

UPM organised briefings, discussions and media meetings locally and addressed all concerns. In February, UPM organised an event with guided tours to present the island and completed logging operations. Approximately 150 people participated in the event.

UPM modified its felling plan according to feedback received at the public event. UPM sold Ärjänsaari Island to the State of Finland for protection area in February 2017.

 **Read more:** [www.upm.com/responsibility](http://www.upm.com/responsibility)



**WORDS MATTER**

The aim of the "Sanat haltuun" (Words matter) project, supported by UPM and organised by the Finnish Reading Centre, is to inspire students from technical vocational schools to read and improve their reading skills. The Finnish Reading Centre will organise 100 functional literacy workshops all around Finland by the end of 2017.

"Literacy is closely linked to mathematical skills as well as success in further studies and working life in general. Slow readers also find it difficult to improve their other professional competencies," says Ilmi Villacis, Executive Director of the Finnish Reading Centre.

Fluent reading skills are required in all professions. UPM is concerned about young people's reading skills, and wants to increase awareness of the importance of reading and lifelong learning.

The feedback from the students has been encouraging. The project is a combined effort between the Finnish Reading Centre, Finnish teachers working in vocational schools, authors, as well as researchers. It will also involve collaboration with libraries. Promoting literacy and learning among children and young people is a focus area of UPM's Biofore Share and Care programme.

 **Read more:** [www.upm.com/responsibility](http://www.upm.com/responsibility), [www.upmbiofore.com](http://www.upmbiofore.com)

**Biofore Share and Care programme supports company strategy**

UPM's Biofore Share and Care programme shows the company's dedication to a sustainable and innovative future through sponsorships and donations. UPM shares its resources with causes that respect sustainable development as well as the company strategy.

The company's guidelines for sponsorships and donations are applied by all businesses. They direct support to reading and learning projects, water initiatives, bio-innovations and community engagement. UPM does not financially support political parties or individual candidates.

The focus of the local sponsorship is to support the vitality of UPM production locations. UPM spent approximately EUR 1.4 million on local sponsorships and donations. For commercial sponsorships, UPM spent approximately EUR 800,000.

UPM's support for its Uruguayan UPM Foundation continued with USD 400,000. The foundation supports and encourages training, entrepreneurship, employment and healthy living and entertainment in local communities in the Uruguayan countryside. (Read more on the Technical University of Uruguay on page 47)

EUR 232,500 was donated to charities or other non-profit causes, including a donation to Finnish Reading Centre for organising reading workshops for technical vocational schools and the Economic Information Bureau for developing digital business course modules for Finnish secondary-school students.

**Continuous development with corrective actions**


Should stakeholders have concerns or suspect misconduct, they are encouraged to contact UPM's Stakeholder Relations function or local units or to use the UPM Report Misconduct channel accessible via the company website. A claim can be made confidentially and anonymously. The company has agreed internal procedures on how to address possible misconduct.

UPM does not tolerate any violations of the UPM Code of Conduct. Employees can ask for advice from appointed Code of Conduct contact persons or report misconduct anonymously through the UPM Report Misconduct channel. Misconduct reports are reviewed carefully and UPM takes corrective actions when necessary.

In 2016, UPM's stakeholder relations organisation, mills and wood sourcing organisation received approximately 200 inquiries and concerns expressed by stakeholders. The concerns related mainly to environment, forestry and biodiversity.

Seventeen cases were reported through the UPM Report Misconduct channel or directly to internal audit. The complaints related mainly to suspected cases of fraud and suspected failures to adhere to the company's HR Rules or compliance procedures. One case related to suspected discrimination is still being investigated. The investigation of four other cases is pending. None of the cases were related to local communities, environment, human rights violations, corruption or labour practices. Four cases led to disciplinary action including warnings or terminations of employment.

REPORTED CASES RELATED TO	2016
Fraud	3
IPR/Confidential data	2
Conflict of interest	4
General human resources	1
Miscellaneous	7

 **Read more on Code of Conduct revision and materiality analysis on p. 14.** Concrete examples of our commitment to stakeholder engagement can be found in the cases throughout this report.

## Extensive and assured information

UPM uses the G4 reporting guidelines published by the Global Reporting Initiative to measure and report on corporate responsibility at Group level. UPM's corporate responsibility reporting for the year 2016 has been compiled in compliance with the "In accordance" – Core option of the GRI G4 Guidelines.

The core responsibility information for 2016 in English, which has been marked as assured in the GRI content index, has been assured by an independent third party, PricewaterhouseCoopers Oy (see the Independent Assurance Report on page 88), and congruence between the English and Finnish versions has been checked. A shortened version of the GRI content index can be found on pages 86–87. The entire GRI content index, including detailed descriptions of the scope of the reporting and data collection techniques, is available in English at [www.upm.com/responsibility](http://www.upm.com/responsibility).

Stakeholder engagement and sustainability are important to UPM. The company is committed to the principles of inclusivity, materiality and responsiveness as defined in the AA1000 AccountAbility Principles Standard (2008).

UPM provides comprehensive environmental information, verified by third parties, from corporate level to the mills and individual products. Ecolabelled products, product declarations and certified operations showcase the stakeholders about company's sustainability, transparency and risk management (read more about UPM's product stewardship on page 56).

## INNOVATION EVENTS RESULTED IN NEW CONNECTIONS AND SOLUTIONS

Innovation is a major part of UPM's Biofore strategy. New products and processes are developed both in house and in collaboration with research institutes, universities and partner companies, and increasingly often with start-ups and growth companies.

Collaborating brings new ideas and makes the innovation process agile and flexible. It helps bring new innovations to the market more cost effectively and at a quick pace. The collaboration benefits both parties and UPM is pleased to be a part of smaller companies' growth and supporting students.

In the autumn of 2016, UPM took part in three major innovation events in Finland: Junction hackathon, Accenture Digital Innovation Challenge (ADIC) and Slush. The target was to find new collaborative partners and solutions to some concrete challenges.

 **Read more:**  
[www.upm.com/innovations](http://www.upm.com/innovations)

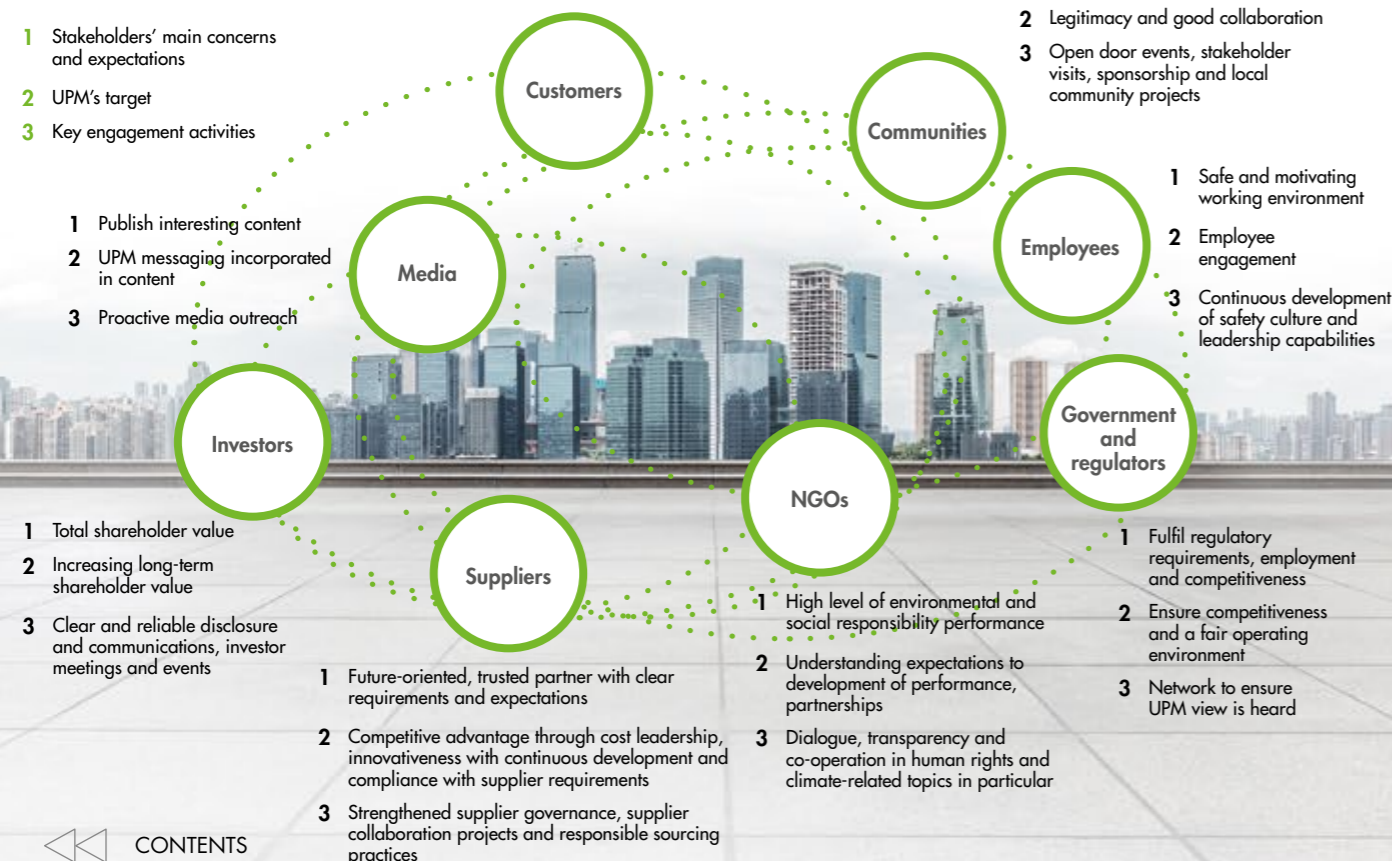
## UPM businesses actively engage with stakeholders

In addition to the group-wide UPM Code of Conduct revision and related trainings, UPM's businesses had their additional focus areas in stakeholder dialogue in 2016. Customer collaboration is presented on pages 52-53, employee activities on pages 40-45.

BUSINESS	COMMUNITIES	GOVERNMENT AND REGULATORS	SUPPLIERS	NGOS	MEDIA
<b>UPM PULP</b>	Finland: Inauguration of the UPM Kymi mill expansion. Logistics in Pietarsaari. Tree planting events, Local waters project and Me & My City co-operation. Recruitment events for students. Uruguay: Regional technical university, UPM Foundation activities. CPA report on UPM's socio-economic impact.	Discussions with the Government of Uruguay regarding the development of logistics infrastructure. CARU results and 10-year fish monitoring results published in Uruguay (p.65).	Safety trainings with contractors.	Finland: Sustainable plantations seminar in Helsinki. Uruguay: Aves Uruguay, BioUruguay, DESEM, Vida Silvestre	Communications on mill events, mill visits.
<b>UPM BIOFUELS</b>	Co-operation with universities and research institutes (VTT, LUT), associations (Association for Finnish Work) and certification bodies & auditors (ISCC). Participation in seminars and conferences.	Discussions with Finnish and EU politicians and authorities on future biofuel policies.	Safety trainings with contractors.	Co-operation with the below50 coalition, Roundtable on Sustainable Bio-materials and WWF Finland.	Visits to biorefinery, interviews.
<b>UPM TIMBER</b>	Active participation in local events e.g. Lappee-Jukola orienteering event. Forest owner visits at the sawmills.	Active co-operation with local authorities on logistics, traffic and permits. Sawmill visits.	Induction and trainings for maintenance and logistic companies.		Seikku sawmill media event: the new log sorting line and wood trade situation.
<b>UPM ENERGY</b>	Inauguration of a new hydropower unit in Harjavalta. Participation in Energia 2016 congress to raise UPM Energy's profile in the Finnish energy industry.	Discussions with Finnish politicians and authorities on energy policy development. Collaboration with local authorities on new hatching facility for migrant fish in Harjavalta, Finland.	Close collaboration related to hydropower.	Discussions on fish migration with NGOs	Inauguration of the new hydropower unit in Harjavalta, Finland.
<b>UPM RAFLATAC</b>	Local sponsorships e.g. Icehearts in Finland and river clean-up in North Carolina, USA.	Active co-operation with local authorities regarding environmental investment in Changshu, China.	Label Life Awards for suppliers, supplier audits, joint projects and workshops.	Sustainability partnerships with WWF Poland and WWF South Africa. Reforestation project of Jaguari River in Brazil.	Factory visits, press conferences on main events.
<b>UPM SPECIALTY PAPERS</b>	Local community and responsibility programmes: Green Future in China and local waters school project in Finland. Tree planting days in Finland and in China. Mini Library Project continued and My Heaven My Water Article Competition in China.	Inauguration of the third paper machine at UPM Changshu, China. High Tech status of the Changshu mill. My Heaven My Water article competition in co-operation with Suzhou Water Resources Bureau.	Trainings on compliance, responsibility and safety.	Joint programmes on sustainable forest management and sustainable paper with the China Sustainable Paper Alliance (CSPA) and China Green Foundation (CGF).	Press conferences regarding the paper machine inauguration and sustainability, media roundtable, mill visits and social media development.
<b>UPM PAPER ENA</b>	Participation in the Junction hackathon in Finland and Reading together – Living together project in Germany. Recruitment events in mill communities for students. Search for new industrial use for empty mill premises. Zero Solid Waste programme in Finland. Local sponsorships.	Discussions on Finnish operating environment and competitiveness of the forest industry, discussions with local authorities in the US on the Madison mill closure and energy-related topics in Germany.	Continuous dialogue and development of co-operation based on annual supplier survey and audits.	Local sponsorship with WWF Finland.	Mill visits and background meetings, active dialogue around various topics incl. restructuring. Responsible Fibre concept (p. 35).
<b>UPM PLYWOOD</b>	Inauguration of Otepää mill expansion in Estonia, open doors at several mills, international student conference on sustainability in Moscow. Apprenticeship programme at the mills.	Active participation in the industry associations' work. Hosting policy maker visits to the various mills.			Media visit to Otepää mill. Background meetings and briefings e.g. on mill shift systems.
<b>WOOD SOURCING AND FORESTRY</b>	Local events to demonstrate modern forestry methods and to discuss sustainable forestry topics (Ärjänsaari p. 48). Dialogue with communities on logging plans. Co-operation with the Guides and Scouts of Finland. Tree planting events. Forest Fair in Finland.	Discussions with EU and Finnish politicians and authorities on forest and biomass policies. Discussion with Finnish authorities on sustainable forestry, voluntary forest protection and active forest ownership promotion.	Development of mobile solutions to forest owners. Supplier audits. Joint UPM Safety Team. Management training programme for contractors. Nature management card trainings.	Joint projects with WWF Finland, BirdLife and Osprey Foundation. Meetings and forest visits.	Press conferences and background discussions on new products and services and wood market.

## THE FOCUS OF UPM'S STAKEHOLDER ENGAGEMENT WORK

UPM's Biofore strategy forms the foundation of UPM's stakeholder dialogue. The key focus areas and activities vary locally and according to stakeholder needs. Find out more about our activities in 2016 in this picture. The table on the right describes the activities in UPM's businesses in more detail.



# Continuous dialogue and collaboration with customers

UPM offers a wide range of renewable and recyclable products to be further processed into a variety of useful everyday products, and also provides services that meet the needs of a versatile range of customers.

UPM's businesses vary in the products and services they offer. Each business has its own customer management process and way of interacting with customers. A comprehensive understanding of the markets, knowledge of end uses and an appreciation of customers' needs form the basis of UPM's customer relationship management.

UPM's target is to provide customers with solutions that improve customers' business processes, with a special focus on creating mutual benefits with increased efficiency. Product stewardship, sustainable raw materials and industry-leading environmental performance are also at the centre of UPM's customer offering.

UPM's interaction with customers is based on continuous dialogue and regular customer satisfaction surveys.

In addition to a continuous working dialogue, UPM is engaged in various development projects with customers. Many of the projects are related to product development, supply chain efficiency and optimisation, as well as the co-planning of activities.

Customer satisfaction is measured regularly in most businesses through customer satisfaction surveys. Based on various business customer satisfaction surveys, the overall total satisfaction with UPM as a supplier is 86% (75%). The result is not comparable with the previous year's result due to changes in the survey methods. The surveys act as a tool for further development, and bring an important customer dimension to performance management.

## Interest in responsibility


Based on the dialogue and surveys, UPM's customers take an interest in the company's responsibility performance and the sustainability of its operations.

Customers value UPM's comprehensive product range, reliability and excellent environmental performance. Product safety, forest certification and chains of custody, resource efficiency, safety performance and the supply chain are among the most important topics.

Customers are increasingly interested in compliance with regulations, the UPM Code of Conduct and social responsibility topics such as working conditions. The significance of long-term financial performance and profitability of the supplier have also increased.

UPM offers product declarations and environmental data for most products as a tool to provide customers with information on the sustainability of products and the supply chain.

BUSINESS AREA	PRODUCT RANGE	CUSTOMER INDUSTRIES	COLLABORATION ACTIONS IN 2016	IMPORTANT CORPORATE RESPONSIBILITY TOPICS	MAJOR CHANGES IN CUSTOMER INDUSTRIES
<b>UPM PULP</b>	Softwood, birch and eucalyptus pulp	Tissue, specialty, graphic papers and packaging	<ul style="list-style-type: none"> <li>Joint development projects with customers in technical and sustainability issues</li> <li>Sustainability services and training for customers</li> <li>Launch of Pulp School</li> <li>Improvement of supply chain efficiency</li> <li>Strengthening sales support</li> <li>Food safety certification to cover all pulp mills</li> </ul>	Safety, forest certification, sustainable forestry, environmental performance of mills, water use and resource efficiency	<ul style="list-style-type: none"> <li>Growth of tissue and packaging board production</li> <li>Continued decline of printing and writing paper industry in mature markets</li> </ul>
<b>UPM BIOFUELS</b>	Wood-based renewable diesel and naphtha for transport	Fuel distributors, transportation, oil and petrochemicals industry	<ul style="list-style-type: none"> <li>Delivery volumes increased year-on-year</li> <li>Launch of UPM BioVerno renewable diesel in marine fleet in the Netherlands</li> <li>Ensuring product functionality by comprehensive motor and fleet testing</li> </ul>	Reducing greenhouse gas emissions and tailpipe emissions, biofuels-specific sustainability certification, social and traceability criteria in targets set by the EU Renewable Energy Directive	<ul style="list-style-type: none"> <li>Global increase of advanced biofuel volumes and demand</li> <li>Waste- and residue-based biofuels are favoured by both customers and legislation</li> </ul>
<b>UPM TIMBER</b>	Standard and special sawn timber	Joinery, packaging, distribution and construction industries	<ul style="list-style-type: none"> <li>Further focus on strategic markets and market-specific weighting</li> <li>Customer categorisation and customer-specific account plans</li> <li>Optimisation of raw material quality and usage</li> <li>Delivery accuracy</li> <li>Excellent service throughout the whole supply chain</li> </ul>	Chain of custody, origin of wood and forest certification	<ul style="list-style-type: none"> <li>Growing importance of East Europe as a production area</li> <li>Instability and financial challenges in Egyptian market</li> </ul>
<b>UPM ENERGY</b>	Electricity and related services	Nordic market, mainly industrial consumers	<ul style="list-style-type: none"> <li>Internal service portfolio enhanced</li> </ul>	Low-emission electricity production, active grid balance management through load management and balancing power, fish migration	<ul style="list-style-type: none"> <li>Structural changes in the Nordic electricity market</li> <li>Increased volatility of electricity market through subsidised weather-dependent production capacity</li> </ul>
<b>UPM RAFLATAC</b>	Self-adhesive paper and film label stock	Label printers, packers, brand owners in durables, tyres, A4, food, beverage, personal care, pharmaceutical, retail and logistics segments	<ul style="list-style-type: none"> <li>New scalable global operating model enabling further growth</li> <li>Expanding customer reach through increased distribution and sales &amp; service coverage</li> <li>Investment in significant capacity increase in Poland operating platform</li> <li>Joint projects with customers and brand owners</li> <li>Sustainability and product safety solutions</li> </ul>	Product safety, lifecycle analysis, ecodesign and bio-based components, waste management, recyclability, responsible sourcing and forest certification	<ul style="list-style-type: none"> <li>E-commerce increasing label use for packaging &amp; logistics</li> <li>Increase in automated product labelling &amp; identification</li> <li>Retailer &amp; distributor network development</li> <li>Adhesive technologies for demanding applications</li> <li>Legislation: Increase in mandatory product information</li> </ul>
<b>UPM SPECIALTY PAPERS</b>	Labelling and packaging materials, office papers, fine papers	Converters, distributors, retailers, OEMs (original equipment manufacturer), printers, publishers	<ul style="list-style-type: none"> <li>Launch of UPM Changshu PM3 labelling materials and new value-added products and services</li> <li>Joint development projects with customers</li> <li>Enhancing sustainability message further</li> <li>Customer focus throughout the organisation</li> </ul>	Product safety, forest certification, origin of wood and resource efficiency, supplier audits at mills	<p><b>Labelling materials:</b></p> <ul style="list-style-type: none"> <li>Growth in personal care products</li> <li>Increased share of e-commerce</li> <li>Increase in automated product labelling and identification</li> <li>Retailer and distributor network development</li> </ul> <p><b>Office papers:</b></p> <ul style="list-style-type: none"> <li>Quality upgrade and lower price in cut-size business</li> </ul>
<b>UPM PAPER ENA</b>	Magazine papers, newsprint and fine papers for various end uses	Newspaper and magazine publishers, printers, cataloguers, retailers, merchants and converters	<ul style="list-style-type: none"> <li>Launch of New Future product family and Responsible Fibre trademark (p. 35)</li> <li>Joint product and business development with customers</li> <li>Development of service offering</li> <li>Improved business interaction with customers</li> <li>Further development of digital service channel Customer Online and its eOrder module</li> </ul>	Safety, forest certification, environmental performance, supplier audits at mills, ecolabels, resource efficiency and financial stability as a supplier	<ul style="list-style-type: none"> <li>Digitalisation</li> <li>Consolidation</li> <li>Eco-tax in France</li> </ul>
<b>UPM PLYWOOD</b>	Plywood and veneer products, thermoformable wood material	Construction, vehicle flooring, LNG shipbuilding and parquet industries as well as furniture and other manufacturing industries	<ul style="list-style-type: none"> <li>Continuation of the ongoing work to improve supply chain performance and service</li> <li>Introduction of value-adding services to customer offering</li> <li>Continuous customer and contract management</li> </ul>	Forest certification, chain of custody, product safety and resource efficiency	<ul style="list-style-type: none"> <li>Increased need for services, stocks and short lead times</li> <li>Requirement for forest certifications has increased within on-site construction end use</li> <li>More customer-driven specifications among industrial end users limiting supplier's possibility to differentiate with a product</li> </ul>
<b>WOOD SOURCING AND FORESTRY</b>	Wood and wood-based biomass (logs, pulpwood, chips, forest residues etc.), full forestry service package offering	All UPM businesses using wood or wood-based biomass, forest owners	<ul style="list-style-type: none"> <li>Focus sourcing to areas next to the mills</li> <li>Sharpen the way of serving forest owners</li> <li>Development of digital solutions to improve customer service</li> </ul>	Sustainable forestry, forest certification, income and employment for people living in rural areas, employee relationship with private entrepreneurs	<ul style="list-style-type: none"> <li>Increasing wood demand and competition due to pulp mill investments in Finland</li> </ul>

 Read more on compliance on p. 14, UPM BioVerno renewable diesel on p. 26, UPM Raflatac's Vanish labels on p. 31 and lifecycle assessment on p. 57, Responsible Fibre trademark on p. 35, responsible sourcing on p. 59 and UPM's approach to circular economy on p. 68.



# UPM's value creation also generates tax revenues

In accordance with UPM's tax policy, UPM pays corporate income taxes in the countries where added value is created and profit is generated. Taxes are paid in accordance with the local tax legislation and regulations of the country in question.

UPM's corporate and operational structure means that UPM reports and pays its corporate income taxes mainly in the production countries and in the countries where innovations are being developed.

In the countries where UPM's business areas have significant value-adding operations in particular, UPM is also a major taxpayer of both income taxes and taxes applied to various production inputs and outputs. In addition to these taxes, the local impact is augmented by the taxes paid to the local municipalities by UPM's employees as well as by those indirectly employed by UPM to perform various services at the production sites.

## About UPM's tax policy

UPM's tax policy is supported by internal instructions, benchmark analysis of best practices as well as by related internal controls. Tax matters at UPM are managed by UPM's own tax function, which is complemented by third-party tax services in order to comply with local tax reporting and filings among others.

The Audit Committee is responsible for the supervision of tax risk

management as part of UPM's risk management processes. UPM's internal control and risk management functions review the tax risks regularly and update the control framework together with the tax function.

UPM aims to co-operate transparently and proactively with tax authorities and other important interest groups regarding taxation.

UPM's tax policy is available on the corporate website under [www.upm.com/governance](http://www.upm.com/governance).

## Corporate income taxes and property taxes paid by country

According to UPM's tax policy, the location of UPM group entities in different countries is driven by business reasons, such as the location of customers, suppliers, raw materials, know-how and other similar considerations.

Corporate income taxes and property taxes paid by UPM are reported by country (see table). The tax figures shown in the country analysis include corporate tax payments and property taxes.

## UPM CREATES SIGNIFICANT ADDED VALUE IN THE FINNISH ECONOMY

According to a study made by the Research Institute of the Finnish Economy (Etlä), UPM is the company producing the most added value in Finland when taking into account the added value produced by companies themselves and the indirect added value resulting from purchases.

UPM's share of the GDP was 2.0% in 2015. The added value produced by UPM in Finland totalled EUR 1.5 billion and the added value generated by the multiplier effects resulting from purchases as much as EUR 2.6 billion. UPM's supply chain in Finland includes 10,000 companies and service providers, and, for example, the company's annual wood sourcing spend is approximately EUR 850 million.

"Forest industry companies mainly purchase their wood raw material from Finland, which means that the added value from wood trade, felling and transport is created in Finland," says Jyrki Ali-Yrkkö, Deputy CEO at Etlätiety Oy.

Added value is the difference between the product's final selling price and the purchase price paid for raw materials, energy, services and other intermediate products to manufacture the product.

"The share of domestic added value is the largest in forest and paper industry as well as in the food industry because they use more domestic raw materials and intermediate products than other industries."

Read more:  
[www.upmbiofore.com](http://www.upmbiofore.com)



UPM aims to develop tax reporting that meets the expectations of various stakeholders and fulfils the various statutory reporting requirements. During 2016, UPM has prepared for the country-by-country reporting on taxes to tax authorities in accordance with the OECD Guidelines.

During 2016, UPM changed its corporate structure in Finland to better match its current business structure. Three new subsidiaries were established in Finland: UPM Energy Oy, UPM Specialty Papers Oy and UPM Paper ENA Oy. The personnel and assets of UPM Energy, UPM Specialty Papers and UPM Paper ENA in Finland were transferred to the new companies on 1 July 2016. UPM Raflatac and UPM Plywood were already operating as subsidiaries in Finland while UPM Biorefining remained part of the UPM-Kymmene Corporation.

In 2016, UPM's corporate income taxes in Finland are estimated to be approximately EUR 138 million in total (EUR 83 million), of which subsidiaries report and pay approximately EUR 56 million (EUR 22 million), and the remaining approximately EUR 82 million (EUR 61 million) is reported and paid by UPM-Kymmene Corporation.

## Taxation at various levels of the value chain

### Taxation of end products varies by business area

In addition to the taxes on income, UPM's various production inputs and outputs are also subject to taxation. These are typically local taxes in the production countries (for example energy taxes, real estate/land and property taxes) or in the location of customers or a final consumption (for example value added taxes, customs and duties or various excise taxes). These taxes may either be paid by UPM or collected by UPM from the customers and remitted to the local authorities.

Due to significant production and consumption of mainly renewable energy, energy taxation is especially relevant for UPM in various countries. The energy taxation refers to excise taxes of liquid fuels as well as electricity and certain other fuels. Energy taxation is subject to detailed regulation not only at country level but also at EU level.

The majority of UPM's own electricity production is hydropower or combined heat and power production at mill sites, where the majority of the fuels used in energy production are from renewable sources. The electricity produced by UPM is subject to the electricity taxation regardless of which sources are used.

The renewable diesel, UPM BioVerno which is produced from crude tall oil, a residue of the pulp production, is also subject to energy taxation. The taxes are charged by fuel distributors to their customers at service stations. The environmental goals of taxation of transport fuels directly impact the business. One of the main goals of the energy taxation

is to globally limit and mitigate climate change and therefore the regulation has developed in favour of advanced biofuels. Consequently, the energy taxes of transport fuels from renewable sources like UPM BioVerno are lower than those of fossil fuels due to their lower carbon dioxide emissions. Therefore the fuel tax of renewable diesel UPM BioVerno is 30–50% lower than that of fossil diesel in the main market in Finland.

### Taxation of raw materials and other inputs

UPM is also a significant electricity consumer, especially for pulp and paper production. All of the electricity consumed by UPM, including the electricity that has been self-produced from renewable sources, is subject to electricity taxes. Most of the fuels used in the production processes are also subject to energy taxes, though there are different tax rates or even exemptions depending on the type of use.

Additionally, taxation of transport fuels is also a significant form of energy taxation for UPM in businesses other than UPM Biofuels. UPM pays significant amounts of energy taxes on fuels as part of logistics costs, especially on road transportation.

### Compensation of paid energy taxes for global cost-competitiveness

Within the EU, the energy taxation legislation allows member states to compensate paid taxes or apply lower tax rates for industrial production or activities which are considered energy intensive. Many of the main UPM production countries, e.g. Finland and Germany, apply such tax reliefs because the level of energy taxation has increased significantly in recent years.

For example, in Finland, electricity is taxed at a lower tax rate when used in industrial production. Energy-intensive industries get a retroactive refund of paid energy taxes based on a separate application, if the amount of energy taxes paid exceeds a certain threshold dependent on the company's added value.

A similar retroactive energy tax refund can be applied for in Austria while in the UK and France, relief is granted upfront in a form of lower tax rates for energy-intensive industrial users that fulfil the requirements. In Germany, there are certain energy tax reliefs that companies may apply for in advance and some that are applied for retroactively if the company fulfils various criteria to be eligible for the reliefs. Like the entire field of energy taxation, energy tax reliefs are subject to detailed regulation not only at country level but also at EU level.

Regarding energy production, UPM benefits from some subsidy schemes and feed-in tariffs related to renewable energy production, such as EEG (Erneuerbare Energien Gesetz) in Germany and operating aid for wood fuel power plants in Finland.

### CORPORATE INCOME TAXES AND PROPERTY TAXES PAID BY COUNTRY

EURm	2016	2015
Finland	133	131
China	11	9
Uruguay	10	10
United States	7	8
United Kingdom	6	2
Russia	5	8
France	3	3
Other countries	8	3
Germany	-2	-2
<b>Total</b>	<b>181</b>	<b>172</b>

### DIRECT ECONOMIC VALUE GENERATED AND DISTRIBUTED BY UPM IN 2016 (EUR MILLION)

Direct economic value created		Economic value distributed	
Sales	9,812	Operating costs	-7,115
Income from sale of assets	99	Employee wages and benefits	-1,246
Income from financial investments	10	Payments to providers of loans	-32
Other income	81	Dividend distribution	-400
		Corporate income taxes paid and property taxes	-181
		Donations	-1
<b>Total</b>	<b>10,002</b>		<b>-8,975</b>
<b>Economic value retained 1,027</b>			

UPM's economic impact is significant in the surrounding communities. The company's operations contribute to local, regional and national economies by generating economic benefits for different stakeholder groups. The related direct monetary flows indicate the extent of added value globally.

Product stewardship is a key element in UPM's responsibility practices. Our products are made of renewable, recyclable and biodegradable materials, and our raw-material base creates a strong foundation for product stewardship and circular economy.

# Product stewardship

2030  
TARGETS

69%

Share of ecolabelled products

The actual value of products is based on their purpose of use, such as reading in the case of paper or construction in the case of timber products. The fact that UPM's products replace products made of non-renewable raw materials adds to their value. We also constantly strive to make products that are as efficient as possible from environment point of view. UPM's product stewardship covers the entire lifecycle of all products from the design phase and raw material sourcing to the end-use and even beyond.

Ecodesign and product safety mean that all the impacts the raw materials and manufacturing processes have on the products and the environment are considered and minimised early on in the design stage. Raw materials, water and energy are used in a resource-efficient way. UPM provides its customers with products that are safe to use. Open and transparent product communication is part of UPM's product stewardship thinking.

In 2016, UPM Specialty Papers introduced several lighter products. UPM Raflatac launched label products that improve the recyclability of its customers' end products and carried out several lifecycle assessment (LCA) projects with customers (read more on the right). The comprehensive new Responsible Fibre™ concept introduced by UPM Paper ENA makes UPM's environmental and social responsibility an integral part of products.

UPM Biochemicals and the University of Helsinki Institute for Molecular Medicine Finland (FIMM) started a joint research project with the purpose of investigating the applicability of UPM's new cellulose-based gel material for cancer research. UPM Raflatac launched new labels for authenticating products and preventing counterfeit products from entering the market in order to improve consumer safety. Both cases are good examples of new products or projects that create larger social and societal value and promote the Sustainable Development Goals (SDG) of the UN. During the year, the UN Global Compact named renewable diesel UPM BioVerno as an example of a product innovation promoting the SDG 13 (Climate Action).

## Ecolabels and product declarations as a sign of transparency

UPM provides product declarations to grant customers easy access to information concerning the responsibility of products and the supply chain. They are developed for various customer needs, for instance to verify that products do not contain hazardous chemicals.

Ecolabels help customers make responsible choices and provide stakeholders with important information. Third-party verified environmental certificates and labels tell customers about the environmental performance of our products.

UPM is globally the largest producer of EU ecolabelled newsprint, office papers and graphic papers. The company also provides its customers with the opportunity to choose papers that have been granted a well-known local ecolabel, such as the German Blue Angel label or the Nordic Ecolabel. All UPM businesses have FSC® and PEFC™ chain of custody certification, which means that customers can use these certifications in their marketing if they wish to do so. In 2016, UPM's biorefinery extended sustainability certification to cover all of its output streams from the Lappeenranta Biorefinery in Finland under the ISCC PLUS (International Sustainability and Carbon Certification Scheme).

UPM's aim is that all applicable products will be ecolabelled by 2030.

## CO-OPERATION BEHIND A WINE LABEL

UPM Raflatac collaborated with Cielo e Terra, one of Italy's largest wine bottlers, for the lifecycle assessment of their wine brand Freschello. A lifecycle assessment involves the analysis of a product's environmental impact throughout its entire lifecycle, from raw material sourcing through to manufacturing and recycling. It provides valuable insight into the product's value chain, revealing the lifecycle stages with the most significant environmental impact.

The analysis revealed that Freschello's most significant environmental impact is caused by the process of manufacturing the glass bottles in which the wine is sold. Another major impact was related to the winery's energy consumption and chosen energy sources.

Thanks to the analysis, it is possible to provide more accurate information about the environmental impact of the product.

For several years, Cielo e Terra has been a member of UPM Raflatac's RafCycle® recycling concept for label stock waste. With the help of the concept, waste generated during the self-adhesive label lifecycle is reused. Thanks to RafCycle, Cielo e Terra has managed to reduce its waste disposal fees.

For example, UPM uses release liners in the manufacturing of recycled paper. Other by-products of the label manufacturing process are used as raw material for UPM ProFi wood plastic composite products, or for energy generation at UPM's production plants.



Read more:  
[www.upm.com/responsibility](http://www.upm.com/responsibility)  
[www.upmbiofore.com](http://www.upmbiofore.com)

# Sustainable forestry

Renewable wood is UPM's most important raw material. UPM is committed to sustainable forestry, and the company uses third-party-verified chains of custody to ensure that the wood it receives is legally sourced from sustainably managed forests.



At the end of 2016, UPM owned 640,000 hectares of forest in Finland and 75,000 hectares of forest in the United States. Additionally, the company has 254,000 hectares of forest plantations in Uruguay. Forests owned by UPM house around 48,000 protected sites with a total area of 147,000 hectares. The company is also responsible for managing almost 900,000 hectares of forests and forest plantations owned by private forest owners.

Forest certification is an excellent tool for promoting sustainable forestry. Certification is based on standards that have been defined in an open stakeholder process, and compliance with these standards is monitored by an independent third party.

All UPM owned forests are certified. To promote the certification of privately owned forests in Finland, UPM has established FSC® and PEFC™ group certification schemes. In 2016, UPM's Finnish FSC group certification scheme grew to cover nearly 250,000 hectares of forest. UPM worked together with FSC Finland to promote certification of small privately owned forests.

UPM also expanded its electronic services for forest owners during the year. The digital applications provided by the company facilitate the systematic management of forest property.

The target is to increase the use of certified wood so that all wood used by the company will be certified by 2030.

## UPM is a responsible forest owner and wood user

The growing need for food production and wood, particularly in the tropics, causes deforestation, which is an important concern for the entire forest industry. UPM recognises this challenge and has reacted by taking action in its own operations and by actively participating in international co-operation networks.

UPM does not use wood from tropical rainforests as raw material, or accept wood from forest plantations that have been established by destroying rainforests. UPM does not operate in areas where the rights of indigenous peoples are threatened or endangered.

In 2016, the CDP Forest Program listed UPM as one of the global leaders on the 2016 Forest A List for timber and timber-based products. Companies on the A List are responding to market demand for environmental accountability and taking action to prevent deforestation.

## Active forestry-related research and development in UPM forests

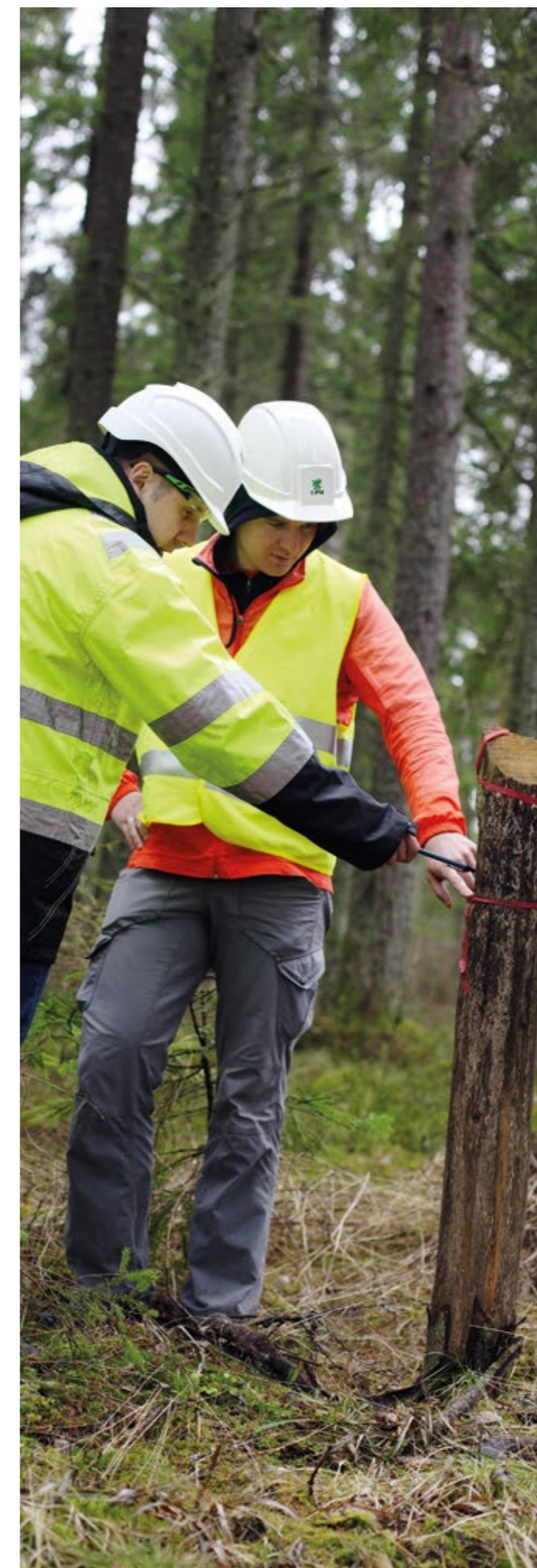
Forest biodiversity has been one of the key factors in UPM's operations for over 20 years. The aim of UPM's global biodiversity programme is to maintain biodiversity in forests, to promote best practice in sustainable forestry and to emphasise the role of ecosystem services. The company is involved in several biodiversity projects in collaboration with various stakeholders.

The UPM biodiversity programme received an honourable mention in the 2016 corporate biodiversity awards by Finland's leading corporate responsibility network FIBS. FIBS also gave UPM an award for its biodiversity reporting.

The Finnish government's bioeconomy strategy, the increasing demand for raw materials resulting from the strategy and the impacts will have on biodiversity raise conflicting opinions. This year, UPM actively participated in a roundtable process coordinated by two Finnish ministries: the Ministry of the Environment and the Ministry of Agriculture and Forestry. The process involves forest owners, forest and environmental organisations and representatives from industry, research and public administration. The common goal is to find ways to safeguard forest biodiversity.

One example of a concrete action carried out to safeguard forest biodiversity is controlled burning. In 2016, UPM performed controlled burning of felling sites located in company forests around Finland. Fire is an essential part of the natural life cycle in boreal forests. After a fire, deadwood and a new generation of trees develop in a couple of years. Controlled burning helps to maintain the habitats of rare and endangered fire-dependent species.

UPM and the Finnish Ministry of the Environment have agreed on the establishment of several private conservation areas on UPM land in 2016. The areas are located in different parts of Finland.



# Responsible sourcing throughout the entire supply chain

Sourcing operations play a significant role in ensuring the efficiency and profitability of UPM.

UPM aims to have a supplier base that is capable of delivering responsibly produced, cost competitive and innovative materials and services to its businesses globally. As a customer, UPM strives to be a trustworthy business partner and that responsible and ethical practices create long-term value for both the company and its stakeholders.

Products and services are a significant cost element for UPM and therefore the cost efficiency is the leading principle in UPM's sourcing.

UPM also sets requirements for the reliability of deliveries in the long term as well as for the quality of the products and services. Furthermore, UPM requires financial stability, environmental and social responsibility, safe products and professional occupational health and safety practices from its suppliers.

## Wide range of suppliers – targeted co-operation

Suppliers and third party intermediaries are an important stakeholder group for UPM. The company's sourcing network consists of suppliers ranging from private forest owners and local companies and operators to large international corporations. Over 30,000 suppliers deliver a variety of raw materials, products and services to UPM globally.

UPM continuously evaluates the performance of its supplier base and seeks to develop its relationship with the key suppliers. The company has established long-term relationships with some 300 suppliers in order to ensure systematic performance and quality development. UPM's businesses annually evaluate satisfaction with the key suppliers' responsibility.

## UPM Supplier Code revised

UPM requires its suppliers and third party intermediaries such as agents, consultants, advisers and joint venture partners to apply the same principles as in the UPM Code of Conduct and to fulfil the criteria concerning social and environmental responsibility. These supplier requirements are defined in the UPM Supplier and Third Party Code. UPM Code of Conduct was revised in 2016 and in connection with that UPM also revised its Supplier Code. Furthermore, UPM expects its suppliers to promote the same requirements in their upstream supply chain.

In 2016, 80% (79%) of UPM supplier spend was qualified against the Supplier Code, i.e. they commit themselves to UPM responsibility requirements including occupational health and safety. All suppliers working on site go through UPM's safety requirements and a web-based safety induction training. A number of additional requirements are in place for sourcing of wood, chemicals, pulp and packaging materials as well as for safety and logistics.

All suppliers who deliver UPM wood, pulp and recycled paper are evaluated based on special criteria on environmental and labour practices, human rights and impacts on society. In practice, this means that those commodities are either certified (FSC® & PEFC™) or subject to due diligence system as required by FSC Controlled Wood standard and PEFC Chain of Custody standard.



# 84%

Share of certified fibre



**SUPPLY CHAIN RISK MANAGEMENT ENHANCED**

The purpose of supplier selection process and the audit is to ensure compliance with UPM's requirements. Using external experts has improved the quality of the audits, especially in environments where accurate knowledge of local language and legislation is important.

UPM's audit partner in China is SGS, the world's leading auditing, verification, testing and certification company. "Typically, the focus has been on occupational health and safety and environmental issues", says Tony Yang, the expert in charge of UPM audits at SGS.

"During the audits, we assess, for example, the measures UPM's subcontractors take to maintain their facilities, the firefighting equipment available or how first aid training is carried out. Meanwhile, we also make sure that the subcontractors comply with the local and international regulations and UPM's requirements".

Based on risk assessment, UPM defines the areas for the audit. The auditor is then responsible for conducting the audit and reporting the results. UPM's responsibility is to ensure the suppliers address any found issues as required.

Read more: [www.upm.com/responsibility](http://www.upm.com/responsibility)

**Transparent supplier requirements are the basis for responsible sourcing**

UPM's supplier risk assessment covers financial, quality, environmental, social, economic and delivery related risks.

Based on the risk assessments, UPM selects the suppliers whose performance is assessed in more detail. UPM uses tools such as annual questionnaires, audits and joint development plans. In 2016, UPM Sourcing function provided comprehensive risk assessment training to key personnel as well as training on operational health and safety issues to personnel visiting suppliers' production units regularly.

The human rights-related risk assessment of the supplier base has been enhanced since 2013. Consequently, the number of risk assessment-based supplier audits has increased with a comprehensive geographical coverage. Some of the audits covered the entire upstream supply chain.

In case of any non-conformance, the supplier is required to take corrective actions. UPM follows the progress and supports the supplier to develop its performance, when needed. However, no significant negative impacts have been identified.

**Wood is the primary raw material**

UPM is both a major forest owner and a purchaser of wood. UPM sources all wood assortments to ensure the optimal utilisation of this valuable raw material.

In 2016, UPM sourced 27.8 (26.1) million cubic metres of wood globally. The majority of wood is purchased from private forest owners who numbered over 25,000.

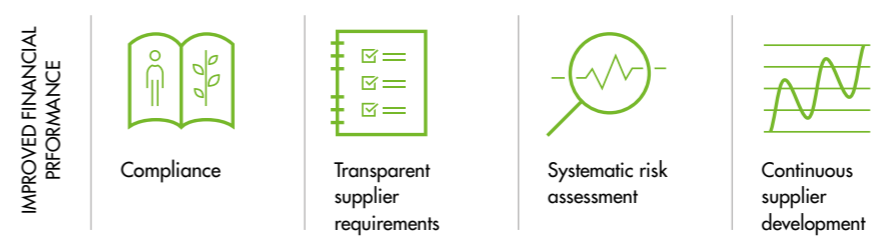
A network of local entrepreneurs is responsible for UPM's harvesting, logistics and forestry operations. Wood Sourcing and Forestry in Finland indirectly employs approximately 2,000 persons via entrepreneurs.

In 2016, Wood Sourcing and Forestry trained its 45 key contractors in Finland in business management. The trainings will continue in 2017.

**Tracing the origin of wood is a prerequisite for UPM**

All wood UPM uses in its products is legal and comes from sustainably managed forests. UPM does not accept mixed tropical hardwood from rainforests, nor does it accept wood from plantations that have been established by destroying rainforests. UPM does not source wood in areas where indigenous peoples' rights are not respected.

**UPM Responsible Sourcing fundamentals**



Read more on UPM Code of Conduct on p. 14, UPM's added value to Finnish economy on p. 54 and UPM's value creation on p. 70-71.

All wood is covered by a third-party verified chain of custody certificates under the FSC® and PEFC™. In 2016, 84% (84%) of the wood used in the UPM mills is certified.

UPM verifies that the wood raw material supplied to its mills is procured according to the requirements of EU Timber Regulation, the US Lacey Act and other regional jurisdictions. The Finnish authorities audited UPM's compliance with the EUTR regarding the deliveries of chips from Russia and the same was done for the pulp from Brazil by the German authorities.

**Aiming at continuous improvement together with pulp and other paper raw material suppliers**

UPM buys approximately 1.8 million tonnes of chemical pulp from external suppliers. Specific requirements are set for pulp suppliers with regard to environmental performance, social responsibility, forestry, wood sourcing and performance reporting.

Collecting and analysing the environmental and social performance-related data of UPM's pulp and chemical suppliers is an integral part of the company's supplier risk and performance management. Based on the results of these analyses, the development plans are made together with the suppliers.

In 2016, UPM Raflatac invited the best performing suppliers to participate in the Label Life Award competition on corporate responsibility. The award recognises UPM Raflatac's suppliers' efforts in achieving good environmental and social performance and generates further co-operation among the participating companies.

Since 2012, UPM Paper ENA and UPM Specialty Papers have conducted a Supplier Performance and Responsibility Survey to follow responsibility of their key suppliers. In 2016, 42 key suppliers were evaluated and some 170 improvement proposals were identified. To motivate its suppliers to further improve their performance, UPM awards the most responsibly performing suppliers annually. The packaging supplier Paul & Co. received the UPM Best in category supplier award for the second time in a row.

**UPM uses significant amounts of recovered paper**

UPM is the world's largest user of recovered paper for the production of its graphic papers, consuming 2.8 (3.1) million tonnes of recovered paper in 2016. The share of recycled fibre represents one third of all fibre raw materials used in UPM's paper production.

The efficiency of paper recycling depends on how the local infrastructure for national collection schemes works. UPM purchases its recovered paper from local authorities, waste management companies and printing houses, all of which are located close to the mills in Europe. This is how UPM maximises cost efficiency and minimises environmental impact.

**Energy from renewable sources**

UPM is both a significant purchaser and producer of energy. The majority of electrical and thermal energy is used for pulp and paper production. UPM favours a wide range of low-emission energy sources and focuses on energy efficiency and energy savings in its businesses. In 2016, 69% (67%) of the fuels used by UPM came from renewable sources.

In addition to UPM's own electricity generation, electricity is also purchased from the energy markets.

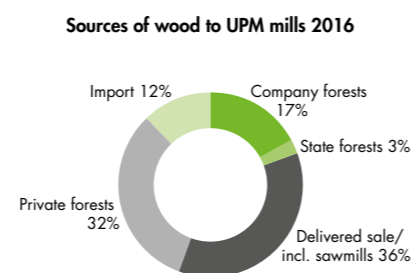
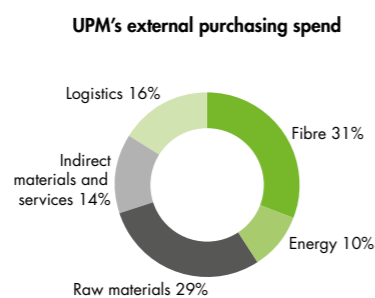
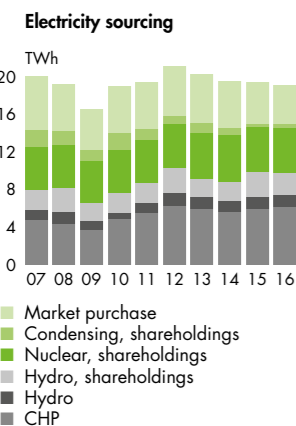
**Logistics form the foundation for on-time deliveries**

UPM delivers approximately 1.3 million truckloads (c. 25 tonne each) of products and raw materials around the world every year; that is one load every 25 seconds. Of all UPM deliveries, 66% are transported by rail and road and 34% by sea. The majority of UPM's haulage is handled by contract partners. UPM aims to create strategic long-term alliances to create benefits for the company and its customers.

UPM considers cost efficiency and environmental aspects in its transport operations. For example, the transport services are purchased from environmentally advanced contractors using low-emission vehicles and transport payloads are optimised.

Wood sourcing and logistics services have a significant socio-economic impact on the rural areas where UPM mills are located. In total, 5,350 harvester drivers, 5,500 truck drivers and 820 rail-road workers work indirectly or directly for UPM. The number of entrepreneurs and companies involved is 860. These numbers combined with purchases from private forest owners significantly support local livelihoods in rural Europe, the US and Uruguay.

Out of a total spend of EUR 3.3 billion for UPM primary raw materials – wood, pulp and recovered paper – 68% was purchased from local suppliers.



WOOD DELIVERIES TO UPM MILLS		
1,000 m <sup>3</sup>	2016	2015
Finland	18,619	17,697
Germany	2,030	1,543
Austria	1,297	1,013
United Kingdom	368	271
Russia	344	272
Estonia	165	135
United States	544	867
Uruguay	4,469	4,293
<b>Total</b>	<b>27,776</b>	<b>26,090</b>

2030 TARGETS **94%** of raw material spend qualified against UPM Supplier Code



Certified management systems help UPM to control and improve the performance of the company's production facilities in matters related to the environment, quality and health and safety.

# Resource-efficient production

The company uses raw materials, water, energy and other resources in a responsible manner and continuously improves its energy, production and cost efficiency. Cost and material efficiency and good environmental performance helps UPM to contribute towards achievement of several UN's Sustainable Development Goals (SDGs).

Almost all of UPM's production plants, as well as its wood sourcing operations, are covered by environmental, quality and occupational health and safety systems, which are certified in accordance with the ISO 9001, ISO 14001 and OHSAS 18001 standards. Additionally, several production plants have an ISO 22000 food safety management system.

In order to improve energy efficiency, UPM has introduced the ISO 50001 certification system in Central Europe and a national energy efficiency system (ETJ+) in Finland. In 2016, UPM's pulp business area developed a joint integrated management system for its four pulp mills. A similar project has started for UPM's paper mills in Finland.

UPM has certified all its European pulp and paper mills, the UPM Fray Bentos pulp mill in Uruguay, and the UPM Changshu paper mill in China in accordance with the EU Eco-Management and Audit Scheme (EMAS). EMAS requires participants to have an Environmental Management System and to publish a third-party verified Environmental Statement, which increases the credibility and reliability of local environmental data.

#### Investments in environmental performance

UPM's investments in environmental performance are part of the Group's investment programme. In 2016, the company's environmental investments totalled EUR 22 (28) million. The single largest investment was UPM Schongau power plant retrofit to achieve lower air emissions. UPM's environmental protection costs totalled EUR 120 (129) million, including depreciation. The main cost items were effluent treatment, waste management, and air pollution control. Effluent treatment amounted to EUR 48 (49) million, waste management to EUR 28 (34) million, and air pollution control to EUR 5 (5) million.

#### Steady decline in number of environmental non-conformances

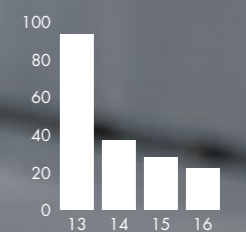
There has been a significant decrease in the number of environmental non-conformances since UPM's internal Clean Run programme was launched in 2012. Over 2,300 preventive environmental observations were reported in 2016. The goal is to improve UPM's environmental performance, share best practices and promote environmental awareness.

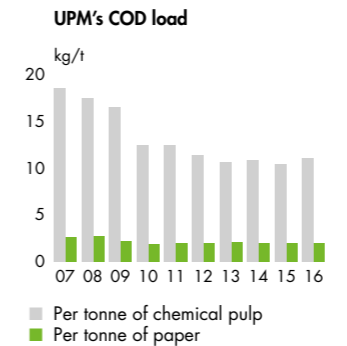
In 2016, UPM introduced a global reporting tool, One Safety, for all UPMers and contractors. The aim is to have a common, UPM way of managing and reporting safety and environment-related operations. One Safety tool covers environment, health and safety, product and process safety as well as security. The tool was successfully implemented at most UPM sites during the year.

No major environmental incidents occurred at UPM production plants in 2016, and UPM was not required to pay any significant fines due to non-conformances. A total of 22 (28) temporary deviations from permit limits or major deviations from the environmental limits set by UPM occurred at the company's pulp and paper mills over the course of the year. The most significant single deviations were related to biological sludge losses from effluent treatment plants or occasional odours from pulp mills. UPM immediately reported deviations to local stakeholders and authorities, and undertook corrective measures to normalise the situation and prevent similar situations from occurring in the future.

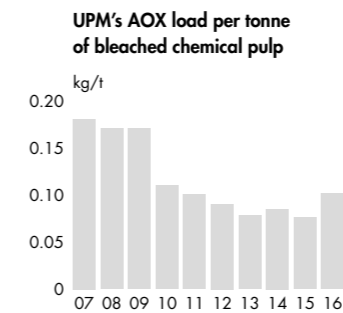
  
2,300  
preventive environmental observations

The number of environmental deviations at UPM pulp and paper mills





The COD load has decreased by 23% per tonne of paper, and by 40% per tonne of chemical pulp, over the last ten years. However, in 2016 load increased due to production increase of chemical pulp.



AOX indicates the amount of halogens bound to the organic compounds present in the effluent. Over the last ten years, the AOX load per tonne of bleached chemical pulp decreased by 43%. However, in 2016 load increased due to production increase of chemical pulp.



**UPM FRAY BENTOS PULP MILL DOES NOT IMPACT ON URUGUAY RIVER**

The recent report by CARU (Comisión Administradora del Río Uruguay) confirms that the UPM Fray Bentos mill fulfils the strictest environmental criteria and the operation of the pulp mill does not have an impact on the Uruguay river. CARU published its monitoring results in November 2016, corresponding to 50 inspections carried out since 2011.

The monitoring work includes the mill's effluent discharge to the Uruguay river as well as water quality in the river itself and at the mouth of the Gualaguaychú river. The cumulative environmental data proves that the mill fulfils all the environmental criteria set by the authorities. All together there have been 67 inspections up to December 2016.

UPM is pleased that the results are finally published by CARU. For UPM, it is important that the performance of the mill has been ratified. The performance is in line with the environmental results of all of the monitoring processes conducted by government and independent sources and which have been publicly available on the company's website since the start-up of the mill in November 2007. At the same time, UPM further reinforces its commitment to comply with Uruguayan law and international standards, sharing mill-related information transparently.

CARU is a permanent joint organisation between Uruguay and Argentina that directs and regulates the objectives and interests of both countries in the shared segment of the Uruguay river.

In addition, a report on a 10-year study of the water quality and biology of the Uruguay river was published in 2016. The results show that there have been no differences in fish number, abundance or biomass between the reference areas and the receiving area adjacent to the pulp mill effluents. The study was conducted by the Faculty of Sciences of Uruguay and international experts and reviewed by the National Environment Directorate of Uruguay (DINAMA).

Read more: [www.upm.com/responsibility](http://www.upm.com/responsibility), [www.upm.uy](http://www.upm.uy) (es)

**Responsible water use**

Water resources and the natural water cycle have a significant impact on UPM's operations in forests, plantations and the production of energy, pulp and paper.

The company's target is to minimise the impact of its operations on water resources, safeguard the natural water cycle in forests, and maintain the functioning of aquatic ecosystems.

All UPM's largest production plants are located in areas where there is sufficient water available. The water used by UPM plants comes from rivers, lakes or groundwater resources. UPM uses water responsibly in terms of the company's water consumption and effluent quality. This has also been acknowledged by the CDP Water Program which has rated UPM with a score of "A-". This is a leadership position in CDP's ranking. CDP's Water Program annually identifies companies that have proven their leadership in the sustainable management of water through concrete actions.

**Responsibility targets for 2030 encourage forward**

Using less water also means using less electricity, chemicals and thermal energy. The water used in different processes is recycled to the extent it's reasonable.

All of UPM's pulp and paper mills are required to have both a mechanical and a biological effluent treatment. In order to ensure the best possible treatment result and share best practice, UPM's wastewater treatment facility team continued its work in 2016. The results have been good and the number of incidents has decreased steadily.

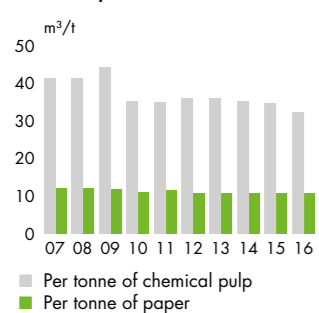
The company's pulp and paper mills began their planning work for achieving the 2030 targets set last year (learn more about the UPM Changshu paper mill research programme on page 38). In order to achieve its nutrient recycling target, UPM has launched nutrient tests

at Finnish mills in collaboration with partners found through the Baltic Sea Action Group (p. 69). The Finnish Ministry of the Environment has granted funding for a joint project established by UPM together with Yara to develop nutrient recycling. Funding has been granted for 2017-2018.

The school project called Local waters, originally launched in Rauma, was expanded to other UPM pulp and paper mill locations in Finland. The purpose of the project is to encourage pupils' interest in natural sciences through hands-on research carried out at waterways. In addition to UPM, the Finnish Environment Institute (SYKE), the organisation puhdasmerivesi.fi and local Rotary Clubs are involved in the project.

Hydropower plays an important role in UPM's versatile energy production portfolio. In many areas, constructing hydropower facilities has affected the reproduction opportunities of migratory fish species. This has traditionally been compensated by fish planting obligations and fish management fees set by authorities. UPM is currently participating in a two-year project aiming to determine suitable means for restoring migratory fish stocks and supporting their natural reproduction. The project began in 2015 and is administered by the Natural Resources Institute Finland. The ecological state of the effluent discharge areas at UPM pulp and paper mill sites has been studied using a number of bio-indicators.

**UPM's process wastewater volumes**



UPM has reduced wastewater volumes per tonne of paper by 11% and per tonne of chemical pulp by 22% over the last ten years.

2030 TARGETS



27%

Reduction in effluent load since 2008



**SOLAR SUCCESS FOR UPM SHOTTON**

The construction of the UK's largest solar park at Shotwick, Cheshire, adjacent to the UPM Shotton paper mill, has brought yet another opportunity for UPM to deliver on its 2030 renewable energy target to reduce fossil CO<sub>2</sub> emissions by 30%.

Solar power is a highly efficient method of energy production with zero moving parts, meaning maintenance is kept to a minimum. Using the latest in both photo-voltaic panels and cutting edge conversion technology, the plant can produce on average 65 MWh/year.

A direct link to UPM Shotton's own infrastructure means that the paper mill can operate on 100% renewable energy during daylight hours.

The start-up of its second steam turbine, utilising excess steam from its biomass combined heat power plant (CHP), in December 2016, means the mill will be on track to meet its own energy efficiency targets and significantly contribute to UPM Group's 2030 responsibility targets.

UPM Shotton's transition to 100% renewable energy started in 2006 with the start-up of its CHP. With a focus on energy efficiency, the mill has continued to reduce its use of fossil fuels from the national grid. The solar park development means it will reduce its purchase of power to almost half.

Read more: [www.upm.com/responsibility](http://www.upm.com/responsibility)

# Climate actions and energy efficiency

The goal of international climate policy is to keep the global average temperature rise at a level that does not threaten nature and society. Achieving the goal requires significant reductions in emissions across the globe. Developing means for adapting and preparing for climate change is also necessary.

UPM's Biofore strategy meets the challenge set by climate change on many levels:

**Sustainable forestry**

- We ensure that our most important raw material, wood, grows in forests that are sustainably managed and act as carbon sinks
- We promote biodiverse ecosystems that are less vulnerable to the impacts of climate change

**Responsible production**

- We promote resource efficiency by making more with less
- We utilise the best available techniques (BAT) in our production
- We continuously increase the share of renewable and low-emission energy in our operations

**Renewable and recyclable products**

- We replace non-renewable materials with renewable materials, and our products store carbon
- We innovate new business and products for future needs

**UPM's energy production is based on versatile energy sources**

UPM is a significant energy producer. The company favours the use of renewable and other carbon-neutral energy sources and the use of natural gas. Biomass-based fuels account for 69% (67%) of the fuels used. UPM is the second-largest generator of biomass-based electricity in Europe.

Paper and pulp mills, which use power and heat in their production processes, represent the majority of UPM's total energy consumption.

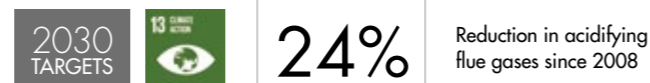
Most of the energy is consumed in the manufacture of mechanical pulp, pumping and paper drying. At all pulp and almost all paper mills, steam and electricity are generated simultaneously by combined heat and power (CHP) plants. At some mills, all or some of the energy is produced by external and co-owned power plant companies.

As the use of weather-dependent energy sources increases, the need for balancing power in energy systems will also grow. UPM is investing in hydropower, the most effective and sustainable method of producing balancing power. The new unit of the Harjavalta hydropower plant was completed in September.

The project provides new possibilities for managing the water flow rate in the Kokemäenjoki and, as a result, decreases the risk of flooding. As part of the renovation project, facilities for a fish hatchery have been built at the power plant. Hatcheries play an important role in maintaining the populations of migratory fish species in rivers with man-made structures.

UPM strives to continuously improve energy efficiency across all its operations. For this purpose, UPM has set a new continuous target to improve energy efficiency by 1% annually. During the last 20 years, energy efficiency in production has significantly improved due to energy audits, innovations and internal campaigns. Electricity consumption per tonne of paper has decreased by 14% over the past 10 years. As a result of the energy-saving actions carried out in 2016, UPM reduced its energy costs by EUR 1.9 (1.2) million, avoided 18,000 (8,100) tonnes of CO<sub>2</sub> emissions and achieved a 49,000 (32,000) MWh reduction in energy consumption. The annual savings were EUR 2.0 (1.7) million, 17,300 (13,000) t CO<sub>2</sub> and 92,000 (51,000) MWh.

In October 2016, UPM was included in the CDP Climate A List. UPM has featured in the CDP Climate Index for eight consecutive years as a result of its climate actions and transparent climate reporting.



**CAPACITY TO GENERATE POWER THROUGH OWN POWER PLANTS AND SHAREHOLDINGS**

	Nominal MW
Hydropower	722
Nuclear power	581
Condensing power	191
<b>UPM Energy in total</b>	<b>1,494</b>
Mill site combined heat and power (CHP)	1,415
Mill site hydropower	49
<b>Mill site power generation in total</b>	<b>1,464</b>
<b>Total UPM</b>	<b>2,958</b>

**ELECTRICITY GENERATION THROUGH OWN POWER PLANTS AND SHAREHOLDINGS**

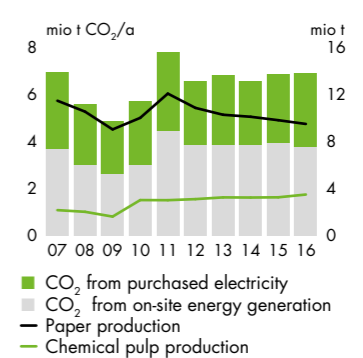
TWh	2016	2015
Mill CHP	6.1	5.9
Hydropower	3.6	3.9
Nuclear power	4.7	4.7
Condensing power	0.5	0.4
<b>Total</b>	<b>14.9</b>	<b>14.9</b>

**FUELS USED FOR HEAT GENERATION**

TWh	2016	2015
Black liquor	19.7	17.6
Bark and other biomass	9.1	8.5
Heat recovered from TMP production	1.3	1.4
<b>Renewable fuels total</b>	<b>30.1</b>	<b>27.5</b>
Peat	1.0	1.1
Purchased heat	1.0	0.7
Natural gas	8.1	8.3
Oil	0.6	0.6
Coal	3.4	3.0
<b>Total</b>	<b>44.2</b>	<b>41.2</b>

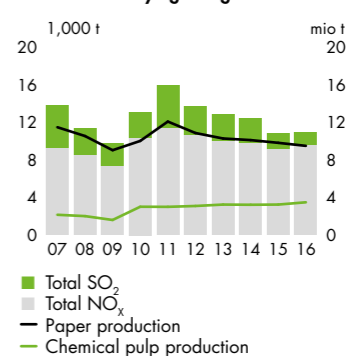


**UPM's fossil carbon dioxide emissions**



In 2016, on-site CO<sub>2</sub> emissions (Scope 1) decreased mainly because of change in energy supply at UPM Hürth mill. CO<sub>2</sub> of purchased electricity (Scope 2) increased mainly due to higher CO<sub>2</sub> factors in Germany and Finland.

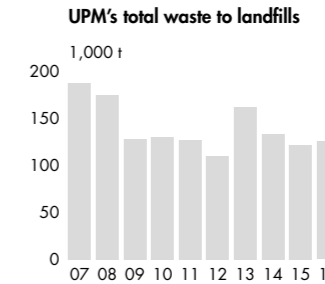
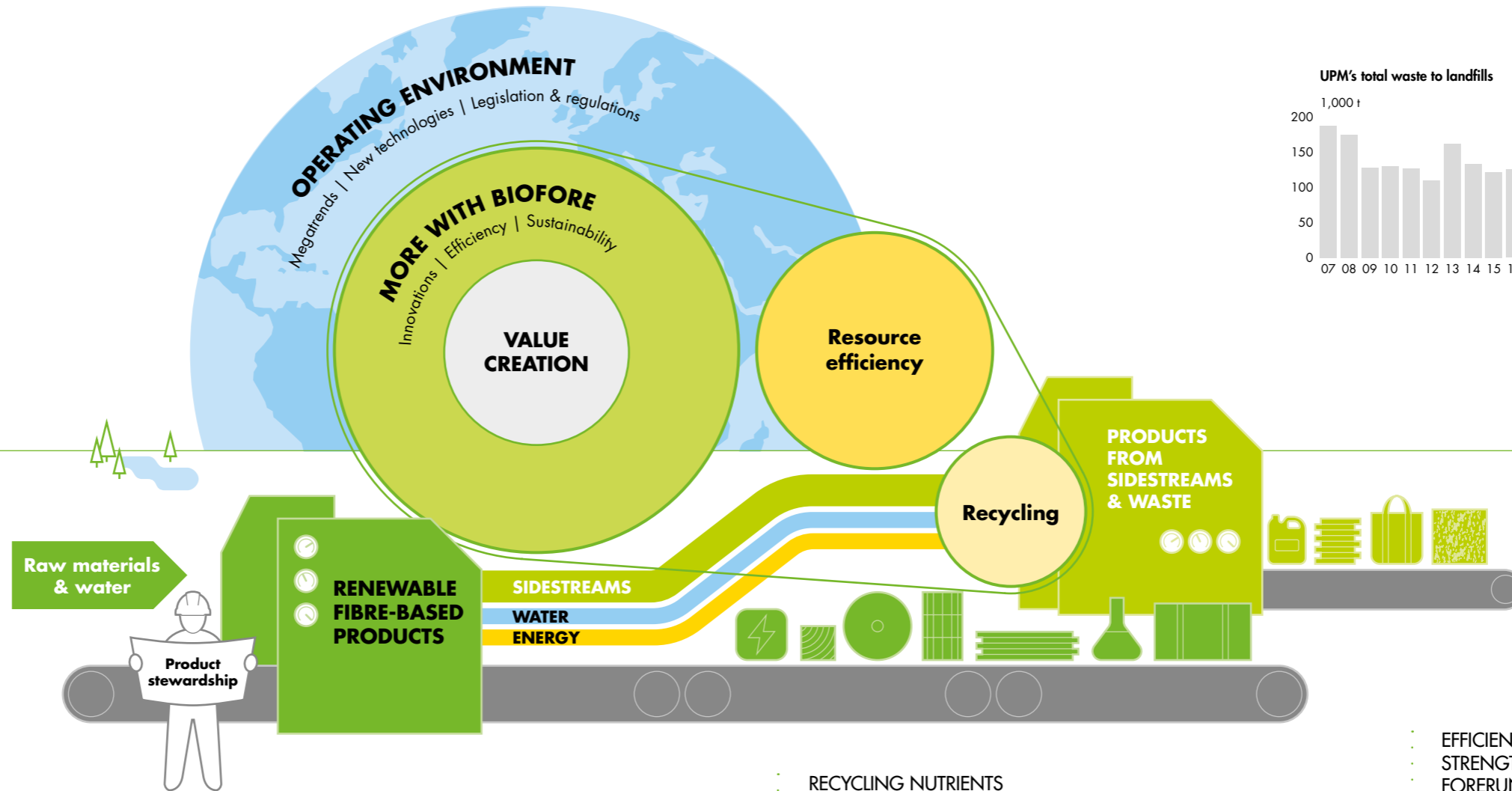
**UPM's acidifying flue gases**



In 2015, reduction was achieved mainly due to investment in flue gas purification at UPM Changshu paper mill. In 2016, increase of NO<sub>x</sub> was mainly due to the production increase of chemical pulp.

# Circular economy at UPM

At UPM circular economy, in short, means reusing materials and products several times and creating added value through smart solutions. In circular economy, we also avoid generating waste, and strive to increase the use of renewable energy and materials.



The total amount of solid waste sent to landfill has decreased over the last ten years by 30%. However, from 2012 to 2013 the total amount of waste sent to landfill increased significantly. This is due to the fact that former reuse possibilities for ash ceased at one of UPM's paper mills. Starting from 2014, new methods of recycling were established. However, in 2016 amount of waste increased due to production increase of chemical pulp.

UPM has followed the principles of circular economy in its operations for a long time. Today, megatrends like population growth and urbanisation, digitalisation, climate change and sustainability highlight the importance of circular economy and generate new opportunities.

New technologies give UPM new ways to create innovative solutions. These technologies include the likes of industrial biotechnology, new uses of fibre, 3D printing, and energy technologies.

UPM utilises wood by-products, such as bark, sawdust and wood-chips, for pulp and energy generation. Many of UPM's new products are made of by-products and waste from traditional production processes.

UPM aims to use every single wood fibre innovatively and efficiently and to offer high-quality alternatives to non-renewable materials.

## Recycling waste is part of circular economy

Reducing the amount of solid waste and increasing recycling and recovery are important targets at all UPM mills. To us, yesterday's waste is the valuable raw material of tomorrow.

Nearly all organic production residues, including bark and wood residues, as well as fibre-containing solids from deinking and effluent treatment, are used in energy generation at mill sites.

Ash originating from bioenergy production forms the most significant proportion of UPM's solid waste. Ash is used on a large scale in applications ranging from landscaping to road building.

UPM has developed innovative ways to reduce its own waste and residues and recycle waste in new products.

Other good examples of the company's efforts in promoting circular economy:

- UPM is the world's largest user of recovered paper for the production of its graphic papers, consuming 2.8 (3.1) million tonnes of recovered paper in 2016
- The share of recycled fibre represents one third of all fibre raw materials used in UPM's paper production
- UPM's renewable diesel, UPM BioVerno, is produced from crude tall oil, a residue of pulp production
- UPM ProFi utilises the cellulose fibres and plastic polymers that are surplus by-products from self-adhesive label manufacture and gives them a new life

UPM's aim is that the company's mills will not send any waste to landfill by 2030. This target has already been achieved at most of the paper mills located in Central Europe. In Finland, the UPM has a Zero Solid Waste project which aims to find the best practice for recycling ash, sludge, dregs, wood-based waste and landfill waste. UPM's research activities also focus on utilising and recycling production side streams more efficiently.

## RECYCLING NUTRIENTS FOR A HEALTHIER BALTIC SEA

Advanced nutrient recovery and recycling practices directly reduce pollution of local water resources.

A good example of this practice can be found at the UPM Rauma mill. This mill co-treats its own effluents and those from the city. This combined effort in treating effluents significantly reduces the amount of nutrients that end up in the Baltic Sea.

Nearly 100% of the nitrogen and phosphorus present in the city's effluents can be reused at the co-treatment plant, meaning that they no longer contribute to eutrophication of the sea. The waste heat derived from the effluents is used to dry out sludge from the treatment plant, which, in turn, is used for energy and heating production in the city of Rauma. The ash generated during this process is reused for landscaping applications.

In autumn 2016, Raki2, a nutrient recycling programme run by the Ministry of the Environment of Finland, provided the funding for a joint project established by UPM together with the fertiliser and crop nutrition expert Yara. The project focuses on the possibilities for reusing nutrients in agriculture. These nutrients are retrieved from the sludge generated by the pulp and paper mill's effluent treatment plants, as well as ash from the incineration process.

Nutrient recycling is a good example of the circular economy concept, whereby natural resources are recycled and reused as many times as possible. UPM's target is to start using 100% recycled nutrients in all of its effluent treatment plants by 2030. This target is included within UPM's commitment to the Baltic Sea Action Group (BSAG), which promotes the restoration of the Baltic Sea's ecological balance.

Read more:  
[www.upm.com/responsibility](http://www.upm.com/responsibility)  
[www.upmbiofore.com](http://www.upmbiofore.com)

## EFFICIENT RECYCLING OF WASTE STRENGTHENS UPM'S POSITION AS FORERUNNER IN CIRCULAR ECONOMY

Zero solid waste to landfill is one of UPM's 2030 responsibility targets. Most of UPM's mills in Central Europe have already reached this goal.

UPM's mills in Finland are involved in a Zero Solid Waste project which aims to find solutions for recycling and create value from ash, sludge, dregs, wood-based waste and landfill waste.

UPM Jämsä River Mills is one of the forerunners in the project. In 2016, no waste from the mills was sent to landfill. All waste is recycled in its current form or after further treatment. Forms of waste that cannot be used at the mill or by any other party are incinerated for energy.

Oil, metal, plastic, paper and cardboard waste are collected for recycling and hazardous waste is forwarded for further treatment. Non-recyclable wood, plastic, paper and cardboard waste are sent to be used as raw material for recovered fuel and, for example, to the UPM Rauma power plant for incineration. Ash from power plants and, for example, soil are sent to be used in soil enrichment or in excavation work.

The efficient recycling of different forms of waste reduces landfill costs and creates revenue.

Read more:  
[www.upmbiofore.com](http://www.upmbiofore.com)

2030 TARGETS **89%** of UPM's total process waste recycled or recovered

# Value creation

## INDIRECT UPSTREAM

## DIRECT UPSTREAM

## DIRECT DOWNSTREAM

## INDIRECT DOWNSTREAM

## IMPACT OF THE CHAIN

ECONOMICAL / GOVERNANCE

Number of suppliers  
55,000

Supplier Code qualified  
supplier spend 80%

Ecosystem services over  
EUR 400 million



**RAW MATERIAL COSTS**  
EUR 4.0 billion



### RAW MATERIALS

Wood 27,800,000 m<sup>3</sup>    Market pulp 1,900,000 t    Recovered paper 2,800,000 t

Purchased paper for converting 440,000 t    Co-mingled domestic waste 180,000 t    Minerals 2,300,000 t

Plastics, adhesives, resins, films 200,000 t



### WATER UPTAKE

Surface water 430 million m<sup>3</sup>



### ENERGY

Renewable fuels 29,000 GWh    Ground water 21 million m<sup>3</sup>

Fossil fuels 13,000 GWh    Communal water 5 million m<sup>3</sup>

Purchased electricity 13,000 GWh

Purchased heat 330 GWh

Skilled employees

New hires 1,900

Number of restricted chemical substances in UPM screening 5,600

UPM forests available for free recreation use 715,000 ha

SOCIAL

ENVIRONMENTAL

Certified wood 84%

Percentage of wood origin known 100%

Seedlings planted 50 million

Water intensive production sites located in water abundant areas 100%

CO<sub>2</sub> emissions scope 2 & 3 upstream 6.9 million t

# UPM



Capital employed  
EUR **10,657** million

Net debt  
EUR **1,131** million

Market cap  
EUR **12,452** million

Approx.  
**85,000**  
shareholders



**19,310**  
employees



**54** production sites in  
**12** countries



**969,000** ha  
forests and plantations



### PRODUCTS

Paper  
**9,400,000 t**

Chemical pulp  
**3,500,000 t**

Fluff pulp  
**52,000 t**

Converting materials  
**520,000 t**

Plywood and veneer  
**760,000 m<sup>3</sup>**

Sawn timber  
**1,400,000 m<sup>3</sup>**

Electricity  
**9,300 GWh**

Heat  
**660 GWh**

By-products (waste for recycling)  
**1,100,000 dry t**

Sales, unconsolidated  
EUR 10,821 million

Comparable EBIT  
EUR 1,143 million

Comparable ROE  
10.9%

Corporate income taxes and property taxes paid  
EUR 181 million

Payments to providers of loans  
EUR 32 million

Value of ecolabelled products  
EUR 6.7 billion

Dividend distribution  
EUR 400 million

Employee wages and benefits  
EUR 1,246 million

Lost-time accident frequency  
employees 3.7  
contractors 6.2

Training hours/employee  
13

Employee engagement  
69%

Biofore Share and Care donations and sponsorships  
EUR 2.4 million

New patents over  
50

Number of customers  
12,000

Number of countries where UPM products are sold  
120

Multiplicative effects of value added  
EUR 2.7 billion

Purchase power of workforce and shareholders  
EUR 1,646 million

People using UPM products over  
250 million

Groups benefitted from Biofore Share and Care programme  
390

Carbon stored in UPM products  
20 million t

Virgin materials replaced  
3.9 million t

CO<sub>2</sub> emissions scope 3 downstream  
3.5 million t

Externality value of scope 1, 2 and 3 CO<sub>2</sub> emissions  
EUR 73 million

Customer and supplier value

Prosperity for sphere of influence

Enhanced business practices

Smart substitution of non-renewables with renewables

Prosperity for sphere of influence

Improved employee wellbeing

Employee skills enhanced

Increasing quality of life through product use and Biofore Share and Care programme

Vitality for sphere of influence

Sustainable use of natural resources

Circular economy and innovations

Climate change mitigation

Biodiversity enhanced

ECONOMICAL / GOVERNANCE

SOCIAL

ENVIRONMENTAL

UPM-Kymmene Corporation (UPM or the company) follows the Finnish Corporate Governance Code (Code) issued by the Securities Market Association. The Code is available on the Securities Market Association's website at [www.cgfinland.fi](http://www.cgfinland.fi). UPM complies with all recommendations of the Code.

Read more:  
[www.upm.com/governance](http://www.upm.com/governance)



# Our governance

The primary source for UPM's governance practices and policies is UPM's corporate website, and especially the governance section, which can be found under [www.upm.com/governance](http://www.upm.com/governance). This section is updated continuously during the year. The below description of the corporate governance focuses on the year 2016 and contains references to the governance section on the corporate website for additional information. UPM's Corporate Governance Statement 2016 and the Remuneration Statement dated 28 February 2017 and corresponding statements for the previous years are also available in the governance section on the corporate website.

## UPM's governance structure

UPM-Kymmene Corporation is a Finnish limited liability company with headquarters in Helsinki, Finland. The parent company UPM and its subsidiaries form the UPM Group having approximately 19,300 employees in 45 countries. The group's business operations are divided into six business areas supported by the global functions. UPM shares are listed on the Nasdaq Helsinki exchange.

UPM uses a one-tier governance model, which, in addition to the general meeting of shareholders, comprises the Board of Directors and the President and CEO as presented in the illustration below. In the operative management of the company, the President and CEO is assisted by the Group Executive Team, the Business Area Boards and the Strategy Team. The general meeting elects the members of the Board of Directors annually, and the Board of Directors appoints the President and CEO,

and the members of the Group Executive Team. The members of the Group Executive Team report directly to the President and CEO.

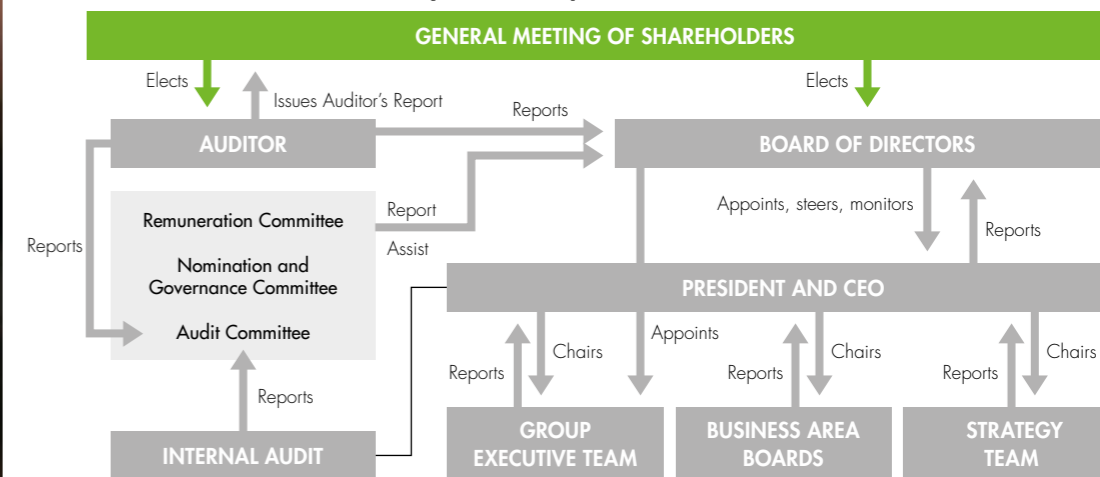
## Governance guidelines and compliance programmes

UPM's decision making, management and operations are guided by UPM values and the UPM Code of Conduct. Legal compliance and responsible and ethical practices are the foundation of all of UPM's businesses. The UPM Code of Conduct is available in 18 languages on the UPM intranet and on the corporate website.

The UPM Code of Conduct has been revised to respond to the ever-faster-evolving business environment and regulatory framework. The Board of Directors approved the revised Code of Conduct in February 2016 and its implementation started immediately thereafter. By the end of 2016, 97% of active UPM employees had completed the Code of Conduct training.

The UPM Code of Conduct is complemented by more detailed rules and guidelines approved by the Group Executive Team, business areas and global functions. These rules and guidelines cover, among others, such topics as anti-bribery, competition law, confidentiality, contract management, taxation, human resources, environment, information security, safety, and equality. UPM strives to ensure compliance with the UPM Code of Conduct and related rules and guidelines by training employees and by developing the company's risk management, monitoring and reporting processes. In 2016,

### Governance structure of UPM-Kymmene Corporation



a compliance risk assessment (incl. corruption) was made with all of UPM's business areas. The assessment led to agreeing certain risk mitigation actions including, among others, more thorough anti-bribery and anti-corruption reviews in certain specific operations.

The UPM Legal Function manages legal compliance programmes and arranges related trainings to specific target groups, which have been defined based on risk assessments. So far, these trainings are provided for anti-corruption, competition law, confidentiality, insider matters, energy markets and trade sanctions.

The Board of Directors, with the assistance of the Audit Committee, is responsible for monitoring compliance with applicable legal and regulatory requirements and with the UPM Code of Conduct and other corporate policies. In addition, the Audit Committee oversees procedures for treatment of complaints and concerns received anonymously or otherwise by the company. As a part of the committee's compliance review, the committee is provided with a quarterly report by the company's Chief Compliance Officer and a report of submissions under the company's Report Misconduct channel by the Head of Internal Audit. This channel is available on UPM's intranet for UPM employees, and also on the corporate website for the company's external stakeholders.

## General meeting of shareholders

The company's supreme decision-making body is the general meeting of shareholders. In 2016, the Annual General Meeting (AGM) was held on 7 April in Helsinki. All decisions at the meeting were taken without voting. These decisions are summarised in the following:

### Financial statements and dividend

The AGM adopted the company's financial statements for the period 1 January–31 December 2015, decided to distribute dividends amounting to EUR 0.75 (EUR 0.70) per share, and discharged the President and CEO, and the members of the Board of Directors from liability for the financial year 2015. The dividends, totalling EUR 400 million, were paid on 21 April 2016.

### Board composition

The AGM elected ten members to Board of Directors for a term that will end upon closing of the AGM 2017. All incumbent directors, i.e. Berndt Brunow, Henrik Ehrnrooth, Piia-Noora Kauppi, Wendy E. Lane, Jussi Pesonen, Ari Puheloinen, Veli-Matti Reinikkala, Suzanne Thoma, Kim Wahl and Björn Wahlroos, were re-elected to the Board. All directors, except President and CEO Jussi Pesonen, are non-executive. The directors' personal details, career histories and other significant positions are presented on pages 82-83 of this report and on the corporate website.

### Board remuneration

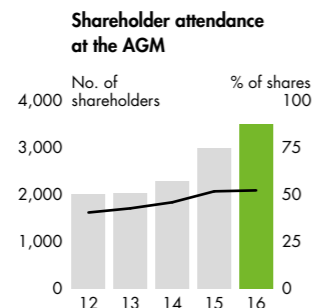
With regard to Board remuneration, the AGM resolved that the Chairman of the Board be paid an annual fee of EUR 175,000, the Board Deputy Chairman and Chairman of the Audit Committee EUR 120,000, and other members of the Board EUR 95,000. In accordance with

the AGM resolution, the annual fees were paid in the company shares and cash so that 40% of the fees were paid in shares and the rest in cash to cover withholding tax. The company paid the costs and transfer tax related to the acquisition of the company shares. No annual fee was paid to the President and CEO for his role as a member of the Board.

The Board members' annual fees, the number of acquired shares and the number of UPM shares held by the members at the end of 2016 are presented in the table below. In addition to the annual fees, the Board members did not receive any other financial benefits for their Board or committee membership. The annual fees have remained the same since 2007. According to the Board charter, Board members are encouraged to own company shares on a long-term basis.

### Auditor and auditor remuneration

The AGM re-elected PricewaterhouseCoopers Oy, a firm of Authorised Public Accountants, as the company's statutory auditor for a one-year term, with Authorised Public Accountant Merja Lindh as the lead audit partner. Ms Lindh has held this position since 8 April 2014. The AGM further resolved that the audit fee would be paid against invoices approved by the Board of Directors' Audit Committee. The fees paid to the auditor, as approved by the Audit Committee, are shown in the following table.



### Auditor's remuneration

EUR MILLION	2016	2015
Audit fee	2.3	2.3
Audit-related services	0.1	0.0
Tax services	0.7	0.8
Other services	0.5	0.5
<b>Total</b>	<b>3.6</b>	<b>3.6</b>

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### Board remuneration and shareholdings in 2016

BOARD MEMBER	POSITION	ANNUAL FEE (EUR)	40% FOR SHARES (EUR)	60% IN CASH (EUR)	NO OF ACQUIRED SHARES	SHAREHOLDINGS ON 31 DEC. 2016
Björn Wahlroos	Chairman	175,000	70,000	105,000	4,235	256,677
Berndt Brunow	Deputy Chairman	120,000	48,000	72,000	2,904	306,482
Henrik Ehrnrooth	Member	95,000	38,000	57,000	2,299	4,575
Piia-Noora Kauppi	Member, Audit Committee Chairman	120,000	48,000	72,000	2,904	14,460
Wendy E. Lane	Member	95,000	38,000	57,000	2,299	35,224
Jussi Pesonen	Member, President and CEO	-	-	-	-	304,064
Ari Puheloinen	Member	95,000	38,000	57,000	2,299	6,600
Veli-Matti Reinikkala	Member	95,000	38,000	57,000	2,299	38,396
Suzanne Thoma	Member	95,000	38,000	57,000	2,299	4,575
Kim Wahl	Member	95,000	38,000	57,000	2,299	16,374
<b>Total</b>		<b>985,000</b>	<b>394,000</b>	<b>591,000</b>	<b>23,837</b>	<b>987,427</b>



### Board authorisations

The AGM granted four authorisations to the Board of Directors. These authorisations are listed in the table below.

Excluding the authorisation to decide on charitable contributions, the Board has not exercised these authorisations. Under the authorisation for charitable contributions, EUR 100,000 has been donated for the "Words Matter" project, organised by the Finnish Reading Centre, and another EUR 100,000 to the project called "The Young Business Generations" organised by the Economic Information Office. The purposes

of these projects are to inspire students of technical vocational schools to read and improve their reading skills, and to develop international business online courses for high school students. Including other minor contributions to several parties, charitable contributions in 2016 totalled EUR 232,500.

## Board of Directors

The primary role of the Board is to be responsible for the governance of the company with the focus on overseeing the long-term

value creation of UPM. In pursuing this goal, the directors have a duty to act on an informed basis with due care and in the best interests of the company, consistent with their other statutory duties.

To fulfil its role effectively, the Board sets the company's strategic objectives, reviews and approves financial and other plans relevant to the achievement of these objectives, and reviews the performance of the management in meeting these objectives. The Board's other main responsibilities relate to the integrity of the company's financial reporting, effectiveness of internal control and risk management systems, and the appointment, remuneration and succession planning of the senior management of the company.

The Board has prepared a written charter for its work including the Board's main duties and operating principles. The board and committee charters were amended during the year to reflect the changes in the regulatory framework. Several corporate policies were also amended or completely revised during the year. The updated charters and information on the corporate policies is available on the corporate website.

### Board work in 2016

In 2016, the Board held ten meetings. In April, one of the Board meetings was held in China, where the Board attended the inauguration ceremonies of the third paper machine in UPM Changshu mill, and was updated on the recent developments in the Chinese economy and business environment. More information on the UPM Changshu investment is on the next page.

The directors' average attendance at the Board meetings was 98% (96.4%). There is no minimum attendance requirement for the directors' attendance at the meetings as the general assumption is that directors attend all meetings unless there is a valid reason for non-attendance. Directors' personal attendance rates are presented in the table on the left.

### Board authorisations

AUTHORISATION	MAXIMUM AMOUNT	VALIDITY
Issuance of shares and special rights entitling to shares	25 million shares (4.7% of all shares)	3 years from the AGM 2016
Repurchase of the company's own shares	50 million shares (9.4% of all shares)	18 months from the AGM 2016
Recognition of reversal entries of revaluations	EUR 158 million	Until the AGM 2017
Contributions to charitable or corresponding purposes	EUR 250,000	Until the AGM 2017

Further information on these authorisations is available on the corporate website.

### Attendance in Board meetings 2016

DIRECTOR	DIRECTOR SINCE	ATTENDANCE/ NO. OF MEETINGS	ATTENDANCE-%
Björn Wahlroos (Chairman)	2008	10/10	100
Berndt Brunow (Deputy Chairman)	2002	10/10	100
Henrik Ehrnrooth	2015	9/10	90
Piia-Noora Kauppi	2013	10/10	100
Wendy E. Lane	2005	10/10	100
Jussi Pesonen	2007	10/10	100
Ari Puheloinen	2014	10/10	100
Veli-Matti Reinikkala	2007	10/10	100
Suzanne Thoma	2015	10/10	100
Kim Wahl	2012	9/10	90



**INVESTMENT IN CHINA RESPONDS TO GROWING DEMAND**

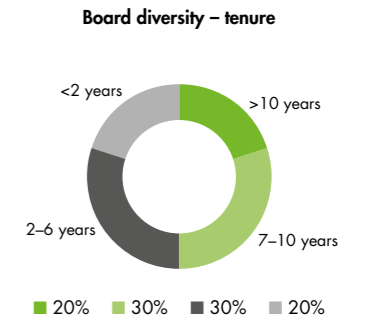
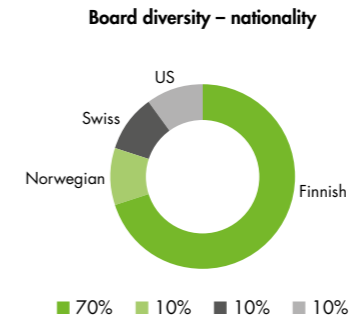
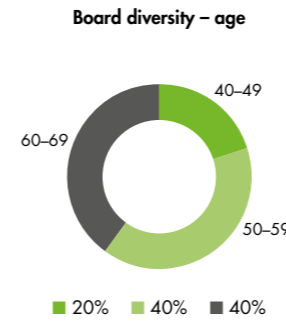
The third paper machine of UPM Changshu paper mill in China, originally started up in December 2015, was officially inaugurated in April. Some 450 dignitaries, customers and suppliers attended the on-site grand opening event. UPM's Board of Directors also participated in the ceremonies.

With the investment, the product portfolio of UPM Changshu has been extended into labelling material and other value added specialty products to better fit customer needs. These segments are forecasted to see significant growth globally, but especially in the Asia-Pacific region.

On this site, UPM has introduced totally new innovative manufacturing technology, not only for China but for the whole paper industry worldwide. This swing concept of the PM3, the world's largest machine for release liners, improves the efficiency of paper production and also helps to improve energy efficiency.

The investment was valued at EUR 277 million. UPM is able to annually produce 1.4 million tonnes of labelling material and fine papers for customers across the Asia-Pacific region and beyond.

UPM first invested in China in 1998 and has since invested more than USD 2 billion in the projects. Today, the Changshu site boasts a fully integrated production and converting capability that incorporates a paper mill, a label stock factory, an Asia research and development (R&D) centre as well as a supply chain centre for the Asia-Pacific region.



has also assessed that all non-executive directors are independent of the company, including Berndt Brunow and Wendy E. Lane, who have been the company's non-executive directors for more than ten consecutive years. Based on the Board's overall evaluation of Mr Brunow's and Ms Lane's independence, their independence is not compromised due to their long service history, and no such other factors or circumstances have been identified that could impair their independence. Instead, all directors have shown constant capacity for independent and objective opinions, challenging and decision making. As the President and CEO of the company, Jussi Pesonen is not independent of the company.

**Board diversity**

The Board's diversity principles are included in the Board's Diversity Policy, which was approved by the Board in December. The policy is available on the corporate website.

The Board considers it important that all directors be individuals of high integrity with the ability to exercise sound judgment on a broad range of issues. For the Board to comprise an appropriate mix of relevant knowledge and experience as well as independence of judgment and diversity of perspectives, the Board has set an objective to have certain key qualifications to be sufficiently represented in the Board. A sufficient number of directors is expected to have relevant professional experience and education to provide them with sound appreciation of issues pertinent to publicly listed companies of a size and scope corresponding to that of UPM, including:

- Financial expertise
- Relevant industry knowledge
- International experience
- Risk management experience
- Experience in the planning and implementation of company strategies, and
- Governance and leadership experience

With regard to other factors relevant to Board diversity, the objective is that the Board include an appropriate number of

directors of different nationalities, ages, and lengths of tenure. Information on UPM Board diversity in respect to these principles is enclosed.

As to the representation of both genders in the Board, the Board has set the following measurable objective: Both genders shall always be represented in the Board, and high priority shall be given to maintaining at least 1/3 representation of the under-represented gender among the non-executive directors in the Board. Where two candidates are equally qualified, priority will be given to the candidate of the under-represented gender. Currently, female directors count for 33.3% of UPM's non-executive directors and 30% of all directors.

**Board evaluation**

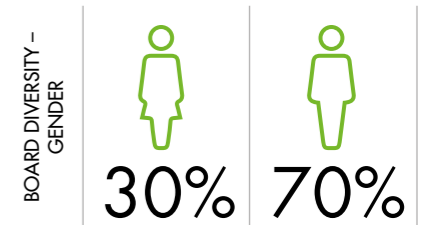
The Board of Directors and its committees evaluate their performance and working methods annually. The Board has used the same evaluation questionnaire with some additions for several years, to maintain comparability of the results. As a result of the evaluation, new improvement or focus areas to enhance the Board work even further are identified each year. The Nomination and Governance Committee takes the survey results into consideration when preparing the Board's proposal for the composition of the Board to the Annual General Meeting.

In 2016, the evaluation was conducted as a self-assessment and its results were reviewed and discussed at the Board meeting in December. Directors evaluated the Board's performance of its duties and responsibilities, Board composition and structure, Board culture, effectiveness of Board meetings, individual director contribution, and performance of the Chairman of the Board.

The overall results of the 2016 self-evaluation survey indicated that the directors are highly satisfied with the Board's operations and working methods and that the Board is functioning very effectively. In 2017, the Board will continue to focus on UPM's strategy-related topics and more time will be allocated to the company's talent review processes and management succession planning.

**Board diversity - education**

DEGREE	NO.
Ph.D. (Econ.)	1
B.Sc. (Econ.)	1
M.Sc. (Econ.)	1
LL.M.	1
MBA or Executive MBA	3
M.Sc. (Eng.)	1
General Staff Officer	1
Ph.D. (Chem. Eng.)	1
BA (Business Admin.)	1
BA (Business Econ.)	1



In line with its main duties and responsibilities, the Board focused on strategic considerations and closely monitored the implementation of the group and business area strategies. The Board reviewed and approved updated strategic plans in its strategy session in May. The main elements of the corporate strategy are performance improvement, focused growth projects, business portfolio development and innovation. A comprehensive description of the corporate strategy, its focus areas and implementation is available on pages 10-23 of this report.

An essential part of the Board's annual strategy work is the review and consideration of strategic and operational risks and opportunities. The company's annual risk management process ends with the reporting of strategic risks and opportunities to the Board. These risks and opportunities and their impact on operations and strategy are described on pages 22-23 of this report. The risk management process is described on the corporate website and on page 9 of the Corporate Governance Statement 2016.

All strategy work is based on the principles of increasing shareholder value and prioritising shareholder views. UPM has increased dividends paid to shareholders year on year, and in 2017, the Board proposes a dividend of EUR 0.95 per share to the company's AGM (in 2016 EUR 0.75 and in 2015 EUR 0.70). The proposed dividend is in line with the company's dividend policy and represents 30% of the operating cash flow per share in 2016.

**Director independence**

The Board of Directors evaluates the independence of its members annually against the independence criteria of the Finnish Corporate Governance Code and additional director independence criteria adopted by the Board's Nomination and Governance

Committee. In addition to this, the Board monitors compliance with the independence criteria on an ongoing basis with the assistance of the Nomination and Governance Committee. The directors shall provide the Board and the committee with adequate information to facilitate the assessment of their independence, and notify the Board and the committee of any changes in such information. The directors shall also express their own opinion of their independence. The Nomination and Governance Committee evaluates the independence of any new director candidates in a similar manner.

Directors' independence is assessed in relation to UPM and its group companies and the company's significant shareholders. A shareholder is significant with a shareholding of at least 10% of the company's shares or votes attached to them or with the right or obligation to acquire the corresponding number of already-issued shares. The majority of directors shall be independent of the company, and at least two directors of this majority shall be independent of significant shareholders.

In order to be considered independent of the company, a director shall not have any material relationship with the company other than his/her service as a director. In the overall assessment of a director's independence, any material relationships with a director's family members or closely related persons or entities are also taken into account in addition to other factors that may compromise the director's independence or ability to represent all shareholders.

According to the evaluation carried out by the Board, all Board members are independent of the company's significant shareholders as the company has no controlling shareholder and none of the company's shareholders has announced a holding of more than 10% of the company's shares or voting rights. The Board



**Committee members and their attendance in committee meetings 2016**

COMMITTEE	MEMBERS	ATTENDANCE/ NO. OF MEETINGS	ATTENDANCE-%
Audit Committee	Piia-Noora Kauppi (Chairman)	7/7	100
	Wendy E. Lane	7/7	100
	Kim Wahl	7/7	100
Remuneration Committee	Veli-Matti Reinikkala (Chairman)	4/4	100
	Henrik Ehrnrooth	4/4	100
	Suzanne Thoma	4/4	100
Nomination and Governance Committee	Björn Wahlroos (Chairman)	4/4	100
	Berndt Brunow	4/4	100
	Ari Puheloinen	4/4	100

**Board committees**

The committees assist the Board of Directors by preparing matters to be decided by the Board. In addition, the committees assist the Board in its oversight and monitoring responsibilities. The Board is responsible for the performance of any duties assigned to the committees.

The directors appointed to the Board committees in the Board's organisational meeting on 7 April 2016 are presented in the table above. The table also contains information on the number of committee meetings and committee members' attendance in the meetings.

The written committee charters approved by the Board of Directors set forth the purposes, composition, operations and duties of each committee, as well as qualifications for committee memberships. As mentioned earlier, the charters were updated in 2016 and are available on the corporate website. Each committee is responsible for carrying out the duties assigned to it in its charter.

The committees hold their meetings prior to Board meetings in order to prepare matters for the Board's decision making. In the Board meeting following the committee meetings, the Committee Chairmen report to the Board on matters discussed and actions taken by the committees. In addition, minutes are kept for the committee meetings and submitted to the Board members for their information.

**Audit Committee**

Duties and responsibilities of the Audit Committee are related to the oversight of the company's financial reporting processes and financial reporting, internal control, internal audit and risk management, and to monitoring the audit and compliance procedures of the company.

To perform its duties, the Audit Committee monitored the company's financial performance and reviewed the key financial figures and quarterly financial reports and recommended the approval of the reports to

the Board. The committee's results reviews also included reviews of potential significant and unusual transactions, and accounting estimates and policies for the period in question. On a quarterly basis, the committee also reviewed reports on assurance and legal matters, including status reports on compliance, internal control, internal audit, litigations, and other legal proceedings. Other quarterly reports presented for the committee's review included treasury reports and energy risk management report.

The lead audit partner attended all committee meetings and provided the committee with reports on the interim procedures and findings as well as accounts of the audit and non-audit fees incurred during the quarter in question. The committee had quarterly non-executive sessions with the internal and statutory auditors and held sessions with executive management, and among the committee members at the end of each meeting.

With regard to monitoring the effectiveness of the company's risk management systems, the committee reviewed the company's risk management process and was informed of the top 20 risks as well as group-level strategic risks identified in this process including macroeconomic, political, environmental, compliance and business-specific risks. In 2016, the committee also reviewed and acknowledged the company's adoption of ESMA (European Securities and Markets Authority) guidelines on alternative performance measures and considered implications resulting from the Market Abuse Regulation for the directors and senior executives and for corporate procedures and policies. In addition, the committee reviewed and approved amendments to its charter due to the changes in the regulatory framework.

The Audit Committee also prepared the Board's proposal to the AGM for the election and remuneration of the auditor. In this respect, and together with corporate manage-

ment, the committee evaluated the qualifications and independence of the auditor, and the auditor's provision of audit-related and non-audit services. The evaluation included the assessment of the effectiveness of the audit process, quality of audit, performance of the lead auditor and the audit team, and co-operation with the auditor's international audit network. As a result of this evaluation, the committee recommended the re-election of PricewaterhouseCoopers Oy as the company's auditor.

**Remuneration Committee**

Duties and responsibilities of the Remuneration Committee are related to the remuneration of the President and CEO and senior executives reporting directly to the President and CEO, and to the review of the company's talent and succession planning procedures for senior management.

To perform its duties, the committee reviews the senior executives' total remuneration annually. The executive remuneration consists of the base salary and fringe benefits, performance-based short- and long-term incentives, and pension benefits.

The committee's review of the executives' salaries and benefits included benchmarking the salaries and benefits to market practices in corresponding positions in peer companies. Based on this review, the committee made recommendations to the Board for the salaries and benefits of the President and CEO and other senior executives.

Related to the company's short- and long-term incentive schemes, the committee reviewed and prepared the annually commencing plans and made recommendations to the Board for the structure, earning criteria, targets and allocation of these plans. The committee also evaluated the achievement of the set targets and the overall performance of the President and CEO and other senior executives, and made recommendations to the Board for the approval of short- and long-term incentive pay-outs. These pay-outs are summarised in the tables on page 81 of this report.

As to the succession plans for senior management, the committee reviewed the company's talent and succession planning procedures and reported to the Board on such matters. The committee was also informed of the results of the employee engagement survey, which was conducted in August–September. In addition, the committee reviewed and approved amendments to its charter.

The Remuneration Committee follows remuneration market trends at regular intervals. In 2016, the committee was provided with a comprehensive review of executive remuneration, including comparison of the company's executive remuneration with that of peers, regulatory framework of remuneration, and remuneration market trends in Europe, the US and APAC. According to that review, the applied remuneration instruments and metrics at UPM widely reflect the common market practices.



**Nomination and Governance Committee**

Duties and responsibilities of the Nomination and Governance Committee are related to the composition and remuneration of the Board of Directors and to corporate governance. When needed, the committee also identifies individuals qualified to serve as the President and CEO.

Following the committee's review of the Board composition and assessment of the Board competences, diversity and qualifications in relation to UPM strategy, operations, and governance needs, no major development needs were identified and therefore, no changes in the Board composition were proposed to the AGM in 2016. With regard to Board remuneration, the committee emphasised the importance of aligning the interests of directors with those of shareholders and concluded that shares continued to be the preferred form of remuneration, but did not propose any changes in the level of remuneration.

In 2016, the committee was especially occupied with governance and compliance-

related matters and assisted the Board in the revision of the UPM Code of Conduct, amendment of the board and committee charters and establishment of the Board diversity principles. These principles and the Board Diversity Policy are discussed earlier on page 77 of this report.

**Director evaluation and nomination process**

The Board Diversity Policy also includes a description of the various phases of the Nomination and Governance Committee's well-established director nomination and evaluation process. This process is presented in the illustration below. When preparing the Board's proposal to the AGM regarding the composition of the Board, the committee follows this process.

**Director independence criteria**

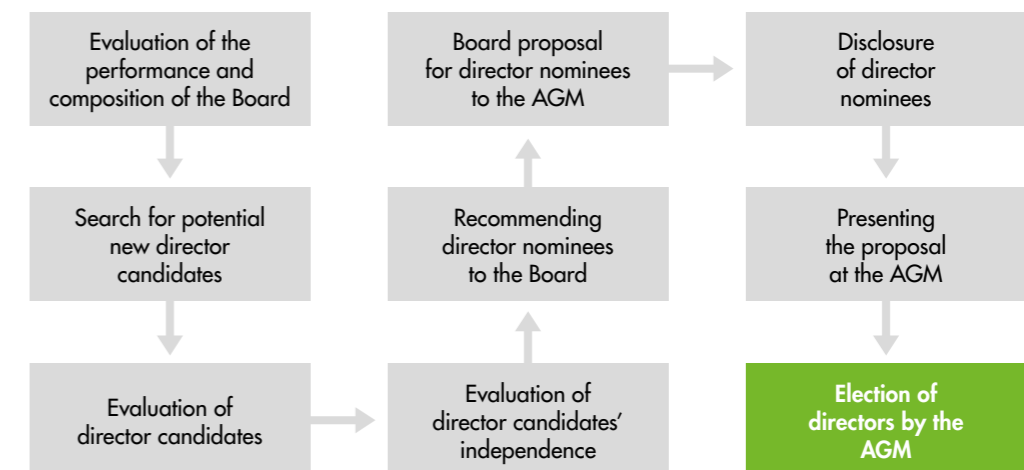
The committee also assisted the Board in the annual assessment of director independence. To facilitate this assessment, the committee adopted director independence criteria in February, which complements the Finnish

Corporate Governance Code's independence criteria. The criteria adopted by the committee are available on the corporate website. The incumbent directors' independence evaluation is discussed earlier on pages 76-77 of this report.

The committee also assessed directors' independence on a continuous basis, and in every meeting reviewed a report on any changes in directors' professional engagements and positions of trust and assessed the potential effects of such changes on directors' independence and availability for Board work, and reported to the Board on the outcome of such assessments. According to the committee's assessment, the changes that took place in 2016 had no effect on the directors' independence or availability.

Furthermore, the committee reviewed the composition, qualification criteria and duties of the Board committees, and made a proposal to the Board of Directors for the appointment of committee members and chairmen. In addition, the committee assisted the Board in the annual evaluation of the Board performance and working methods and in the review of the survey results.

**Director evaluation and nomination process**



## Executive management

Jussi Pesonen has been the President and Chief Executive Officer of UPM-Kymmene Corporation since January 2004. He has also been a member of the company's Board of Directors since March 2007. The President and CEO leads the company's day-to-day operations in accordance with the instructions and orders given by the Board of Directors. The duties and responsibilities of the President and CEO are presented on the corporate website.

In the operative management of the company, the President and CEO is assisted by the Group Executive Team, the Business Area Boards and the Strategy Team as presented in the illustration on page 73 of this report.

The Group Executive Team consists of the executives heading the business areas and the

global functions, and it assists the President and CEO in respect of approving and executing group-level guidelines and procedures. The President and CEO chairs the Group Executive Team. Members of the Group Executive Team carry the main responsibility for the business areas and global functions they are heading. These responsibility areas are presented in the illustration below.

The Business Area Boards comprise, in addition to the President and CEO chairing the boards, the CFO, the EVPs of the global functions, and the EVP of the business area in question. The Business Area Boards assist the President and CEO as regards business-area-level decision making in matters pertaining to each business area's strategy,

budget, business performance, operative investments, commercial strategies, business development plans, business and strategic risks, strategic and organisational changes as well as HR matters.

The Strategy Team is chaired by the President and CEO and its other members are the CFO and the heads of the strategy, technology and legal functions. The team assists the President and CEO in matters pertaining to the preparation of group strategies, strategic projects, capital expenditure, M&A and other strategic development initiatives for approval by the Board of Directors.

Members of the Group Executive Team and their position and shareholdings in the company are presented in the table below.

### Responsibility areas of the members of the Group Executive Team

PRESIDENT AND CEO JUSSI PESONEN				
<b>CFO</b> <sup>1)</sup>	Tapio Korpeinen	Heikki Vappula	UPM Biorefining	
<b>General Counsel</b>	Juha Mäkelä	Tapio Korpeinen	UPM Energy	
<b>Strategy</b>	Kari Ståhlberg	Antti Jääskeläinen	UPM Raflatac	
<b>Technology</b> <sup>2)</sup>	Jyrki Ovaska	Bernd Eikens	UPM Specialty Papers	
<b>Human Resources</b>	Riitta Savonlahti	Winfried Schaur	UPM Paper ENA	
<b>Stakeholder Relations</b> <sup>3)</sup>	Pirkko Harrela	Mika Sillanpää	UPM Plywood	

<sup>1)</sup> Incl. Finance & Control, Treasury, IR, IT, Sourcing and Real Estate (incl. Finnish forest assets)

<sup>2)</sup> Incl. Investment Management, R&D, new business development (biocomposites, biochemicals)

<sup>3)</sup> Incl. Brand & Communications, Environment & Responsibility, Public & Media Relations

### Members of the Group Executive Team

EXECUTIVE	TEAM MEMBER SINCE	POSITION AT UPM	SHAREHOLDINGS ON 31 DEC. 2015	SHAREHOLDINGS ON 31 DEC. 2016
Jussi Pesonen	2001	President and CEO	220,275	304,064
Bernd Eikens	2013	Executive Vice President, UPM Specialty Papers	13,747	26,686
Pirkko Harrela	2004	Executive Vice President, Stakeholder Relations	40,870	58,087
Antti Jääskeläinen (as of 1 July)	2016	Executive Vice President, UPM Raflatac		–
Tapio Korpeinen	2008	CFO, Executive Vice President, UPM Energy	54,747	85,355
Juha Mäkelä	2008	General Counsel	37,500	39,717
Jyrki Ovaska	2002	Executive Vice President, Technology	74,269	64,877
Riitta Savonlahti	2004	Executive Vice President, Human Resources	17,803	15,420
Winfried Schaur (as of 8 Feb.)	2016	Executive Vice President, UPM Paper ENA		322
Mika Sillanpää	2013	Executive Vice President, UPM Plywood	11,883	12,845
Kari Ståhlberg	2013	Executive Vice President, Strategy	7,229	16,794
Heikki Vappula	2010	Executive Vice President, UPM Biorefining	17,111	40,067
<b>Total</b>			<b>495,434</b>	<b>664,234</b>

The executives' biographical details, career histories and positions of trust are presented on pages 84-85 of this report and on the corporate website.



## Management remuneration

The Board of Directors resolves annually on the remuneration of the President and CEO and other members of the Group Executive Team based on the proposals by the Remuneration Committee. The aim of the company's management remuneration is to promote the company's long-term financial success, competitiveness and favourable development of shareholder value.

The management remuneration comprises non-variable and variable components. The variable components are linked to predetermined and measurable performance and results criteria, and maximum levels have been set for the variable components of the remuneration.

The base salary is paid monthly in cash. The base salary includes the fringe benefits, e.g. company car and phone. Short-term incentives are based on the company's Short Term Incentive Plan and they are paid annually in cash. The amount of the incentive is linked to the executive's position and achievement of annually set targets.

Long-term incentives are based on the Performance Share Plan targeted at the President and CEO and other Group Executive Team members, as well as other selected members of management. The Performance Share Plan consists of annually commencing three-year plans, and the incentives are payable in company shares following a three-year earning period. The number of payable shares is linked to the executive's position and achievement of annually set targets. Long-term

incentives are also paid to other key employees of the group based on the Deferred Bonus Plan.

The company's short- and long-term incentive plans, and the termination payments and pension benefits of the President and CEO and other members of the Group Executive Team, are presented on pages 117-119 of this report and in the Remuneration Statement, which is available on the corporate website.

### Remuneration of the President and CEO in 2016

The President and CEO's annual salary and other financial benefits are shown in the table below.

SALARIES AND BENEFITS (EUR 1,000)		
	2016	2015
Salary	1,049	1,052
Short-term incentives	888	856
Share rewards	3,098	824
Benefits	30	27
<b>Total</b>	<b>5,065</b>	<b>2,759</b>
Income tax withholding <sup>*)</sup>	2,592	1,381

<sup>\*)</sup> Income taxes withheld from salaries and benefits and remitted to tax authorities by UPM.

### Remuneration of the Group Executive Team in 2016

The annual salaries and other financial benefits of the members of the Group Executive Team (excluding the President and CEO) are shown in the table below.

SALARIES AND BENEFITS (EUR 1,000)		
	2016	2015
Salaries	3,564	3,455
Short-term incentives	1,779	1,733
Share rewards	6,269	1,805
Benefits	231	238
<b>Total</b>	<b>11,843</b>	<b>7,231</b>

Read more: [www.upm.com/governance](http://www.upm.com/governance)

# Board of Directors



**Björn Wahlroos**

Chairman  
Chairman and member since 2008  
Chairman of the Nomination and Governance Committee  
Independent of the company and significant shareholders  
Born 1952, Finnish citizen  
Ph.D. (Econ.)

President and CEO of Sampo plc 2001–2009.  
Chairman of the Board of Mandatum Bank plc 1998–2000, CEO and Vice Chairman of the Board of Mandatum & Co Ltd 1992–1997.  
Member of the Executive Committee and Executive Vice President of the Union Bank of Finland 1985–1992.

Chairman of the Board of Sampo plc, Nordea Bank AB (publ) and Hanken School of Economics.

Member since 2007  
Independent of significant shareholders, non-independent of the company  
Born 1960, Finnish citizen  
M.Sc. (Eng.)

President and CEO of UPM-Kymmene Corporation since 2004.  
COO of the Paper Divisions and Deputy to the President and CEO 2001–2004. Several management positions in UPM Paper Divisions 1987–2001.

Chairman of the Board of the Finnish Forest Industries Federation (FFIF). Chairman of the Board of the Finland Chamber of Commerce and ICC Finland (as of 1 January 2017). Board member of the Confederation of European Paper Industries (CEPI) and East Office of Finnish Industries Oy.



**Jussi Pesonen**



**Berndt Brunow**

Deputy Chairman  
Member since 2002,  
Deputy Chairman since 2005  
Member of the Nomination and Governance Committee  
Independent of the company and significant shareholders  
Born 1950, Finnish citizen  
B.Sc. (Econ.)

President and CEO of Oy Karl Fazer Ab 2002–2007.  
President and CEO of Sanitec Corporation 2000–2002.  
Prior to this, over 20 years of experience in executive positions at Finnpap and UPM-Kymmene Corporation.

Chairman of the Board of Lemminkäinen Corporation and Oy Karl Fazer Ab. Board member of Hartwall Capital Oy Ab..  
Chairman of the Board of Mutual Pension Insurance Company Varma until 31 December 2016.

Member since 2014  
Member of the Nomination and Governance Committee  
Independent of the company and significant shareholders  
Born 1951, Finnish citizen  
General Staff Officer, General (ret.)

Commander of the Finnish Defence Forces 2009–2014.  
Chief of Finnish Defence Command 2007–2009 and Commander of the Eastern Command 2004–2007. Deputy Chief of Operations of the Finnish Defence Staff 2000–2003 and Brigade Commander 1999–2000. Principal Secretary of the Defence Council 1997–1999. Assistant Defence Attaché in Moscow 1986–1990.

Board member of Caverion Corporation, Patria Plc and the Association for the New Children's Hospital 2017.



**Ari Puheloinen**



**Henrik Ehrnrooth**

Member since 2015  
Member of the Remuneration Committee  
Independent of the company and significant shareholders  
Born 1969, Finnish citizen  
M.Sc. (Econ.)

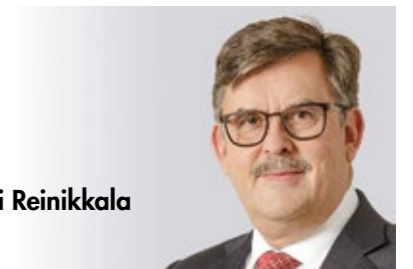
President and CEO of KONE Corporation since 2014 and Chief Financial Officer 2009–2014. Earlier worked at Goldman Sachs International 1998–2009, most recently as a Managing Director in the Investment Banking Division. Prior to this, various positions at UBS Limited 1994–1998.

Member of the Foundation Board of the International Institute for Management Development (IMD, Switzerland).

Member since 2007  
Chairman of the Remuneration Committee  
Independent of the company and significant shareholders  
Born 1957, Finnish citizen  
eMBA

President of ABB Region Europe during 2015 and member of the Group Executive Committee of ABB Ltd 2006–2015. President of ABB Process Automation Division 2006–2014. Business Area Manager for ABB Process Automation 2005. Automation Technologies Division Manager in ABB China 2003–2004. Manager for ABB Drives 1997–2002. CFO of ABB Industry Oy 1994–1996. Prior to this, various positions in paper and packaging companies in Finland.

Board member of Fortum Corporation.



**Veli-Matti Reinikkala**



**Piia-Noora Kauppi**

Member since 2013  
Chairman of the Audit Committee  
Independent of the company and significant shareholders  
Born 1975, Finnish citizen  
LL.M.

Managing Director of the Federation of Finnish Financial Services since 2009. Member of the European Parliament and member of various parliamentary committees 1999–2008, Head of the Finnish Delegation in the EPP-ED Group 2004–2008. Legal advisor for the Parliamentary Group of the National Coalition Party Kokoomus 1997–1999.

Board member of Sulava Oy and the Finnish Financial Ombudsman Bureau. Member of the Supervisory Board of Helsinki Deaconess Institute and HSE Foundation. Member of the Executive Committee of European Banking Federation.

Member since 2015  
Member of the Remuneration Committee  
Independent of the company and significant shareholders  
Born 1962, Swiss citizen  
Ph.D. (Chem. Eng.),  
BA (Business Admin.)

Chief Executive Officer of BKW Ltd. since 2013. Head of BKW Group's Networks Business Unit 2010–2012. Head of WICOR Group's Automotive Division 2007–2009. Chief Executive Officer of Rolic Technologies Ltd 2002–2007. Various positions at Ciba Specialty Chemicals Corp. (former Ciba-Geigy) 1990–2002.

Board member of Schaffner Holding AG and Beckers Group.



**Suzanne Thoma**



**Wendy E. Lane**

Member since 2005  
Member of the Audit Committee  
Independent of the company and significant shareholders  
Born 1951, US citizen  
MBA (Harvard)

Chairman of the Board of Lane Holdings, Inc. since 1992.  
Managing Director and Principal at Donaldson, Lufkin & Jenrette Securities Corp. 1981–1992. Banking Associate at Goldman, Sachs & Co. 1977–1980.

Board member of Willis Towers Watson PLC (former Willis Group Holdings PLC), MSCI Inc. and Al-Dabbagh Group Holding Company Limited.

Member since 2012  
Member of the Audit Committee  
Independent of the company and significant shareholders  
Born 1960, Norwegian citizen  
MBA (Harvard)  
BA (Business Econ., San Diego)

Chairman of the Board of Strömstangen AS since 2009.  
Deputy Chairman and Cofounder of the European private equity firm IK Investment Partners 1989–2009. Associate, Corporate Finance, Goldman, Sachs & Co. 1987–1989.

Board member of DNB Bank ASA and Intermediate Capital Group plc. Chairman of the Board of Voxtra AS and Voxtra Foundation.



**Kim Wahl**

# Group Executive Team



**Jussi Pesonen**

President and CEO  
M.Sc. (Eng.)  
Born 1960, Finnish citizen  
Member of the Group Executive Team since 2001.  
Employed by UPM-Kymmene Corporation since 1987.

Several management positions in UPM Paper Divisions 1987–2001. COO of the Paper Divisions and Deputy to the President and CEO 2001–2004. President and CEO since 2004.

Chairman of the Board of the Finnish Forest Industries Federation (FFIF). Chairman of the Board of the Finland Chamber of Commerce and ICC Finland (as of 1 January 2017). Board member of the Confederation of European Paper Industries (CEPI) and East Office of Finnish Industries Oy.

Executive Vice President, Technology  
M.Sc. (Eng.)  
Born 1958, Finnish citizen  
Member of the Group Executive Team since 2002.  
Employed by UPM-Kymmene Corporation since 1984.

Several management positions at United Paper Mills Ltd and UPM in the Printing Papers Division 1984–2001. President, Fine and Speciality Papers Division 2002–2003. President, Magazine Paper Division 2004–2008. President, Paper Business Group 2008–2013.

Chairman of the Board of CLIC Innovation Oy. Member of the Finnish Research and Innovation Council. Vice Chairman of AmCham Finland (The American Chamber of Commerce in Finland).



**Jyrki Ovaska**



**Tapio Korpeinen**

Chief Financial Officer, and Executive Vice President, UPM Energy  
M.Sc. (Tech.), MBA  
Born 1963, Finnish citizen  
Member of the Group Executive Team since 2008.  
Employed by UPM-Kymmene Corporation since 2005.

Several management positions at Jaakko Pöyry Consulting in Finland and North America 1991–1998 and 1999–2005. A.T. Kearney in Finland 1998–1999 and McKinsey & Company in Sweden 1988–1990. Vice President, Corporate Development and Senior Vice President, Strategy, UPM 2005–2008. President, Energy and Pulp Business Group, 2008–2010. CFO since 2010.

Chairman of the Board of Pohjolan Voima Oy. Vice Chairman of the Board of Kemijoki Oy. Board member of Teollisuuden Voima Oyj. Supervisory Board member of Varma Mutual Pension Insurance Company.

Executive Vice President, Human Resources  
M.Sc. (Econ.)  
Born 1964, Finnish citizen  
Member of the Group Executive Team since 2004.  
Employed by UPM-Kymmene Corporation since 2004.

HR Specialist positions at ABB 1990–1994. Human Resources Manager at Nokia Mobile Phones, Salo Operations 1995–2000. Senior Vice President, Human Resources at Raisio Group 2000–2001. Senior Vice President, Human Resources at Elcoteq Network Corporation 2001–2004.

Supervisory Board member of Ilmarinen Mutual Pension Insurance Company. Member of Labour Markets Committee of the Finnish Forest Industries Federation (FFIF).



**Riitta Savonlahti**



**Bernd Eikens**

Executive Vice President, UPM Specialty Papers  
Ph.D. (Eng.)  
Born 1965, German citizen  
Member of the Group Executive Team since 2013.  
Employed by UPM-Kymmene Corporation since 1998.

Senior Process Engineer, International Paper Co. 1996–1998. Several management positions at UPM Nordland Papier 1998–2005. President, UPM-Kymmene Inc. North America 2005–2008. Senior Vice President, Supply Chain, Paper Business Group 2008–2013. Executive Vice President, UPM Paper ENA 2013–2016.

Supervisory Board member of Johann Bunte Bauunternehmung GmbH & Co. KG.

Executive Vice President, UPM Paper ENA  
Dipl. Ing. (FH)  
Born 1965, German citizen  
Member of the Group Executive Team since 2016  
Employed by UPM since 2001

Project Engineer, Hoerbiger Automotive 1991–1992. Project Manager, Investments, Haindl Papier GmbH 1993–2001. Several leadership positions in the UPM paper business 2001–2007. General Manager, Schongau mill, UPM Paper Business Group 2007–2013. General Manager, Ettringen mill, UPM Paper Business Group 2011–2013. Senior Vice President, Newspaper Publishing, UPM Paper ENA 2013–2016.

Board member of EURO-GRAPH asbl, the European Association of Graphic Paper Producers. Board member of the German Pulp and Paper Association VDP.



**Winfried Schaur**



**Pirkko Harrela**

Executive Vice President, Stakeholder Relations  
M.A.  
Born 1960, Finnish citizen  
Member of the Group Executive Team since 2004.  
Employed by UPM-Kymmene Corporation since 1985.

Several positions in Communications in Finnmap and UPM Paper Division 1985–2002. Vice President, Corporate Communications of UPM 2003. Executive Vice President, Corporate Communications 2004–2013.

Member of S-Group's CSR Advisory Group. Supervisory Board member of WWF Finland. Board member of Deutsch-Finnische Handelskammer, Satalinna Foundation and UPM-Kymmene Cultural Foundation. Member of the Board of Governors of the Association for Finnish Work.

Executive Vice President, UPM Plywood  
M.Sc. (Eng.)  
Born 1958, Finnish citizen  
Member of the Group Executive Team since 2013.  
Employed by UPM-Kymmene Corporation since 1985.

Several management positions at UPM Raflatac in Finland and in France 1985–2000. Vice President, UPM Raflatac Europe 2001–2003. Senior Vice President, Strategic Development, UPM Raflatac Group 2003–2008. Vice President, Sourcing, UPM Raflatac Group 2008–2013.

Board member of Federation of the Finnish Woodworking Industries.



**Mika Sillanpää**



**Antti Jääskeläinen**

Executive Vice President, UPM Raflatac  
M.Sc. (Eng.), M.Sc. (Econ.), MBA  
Born 1972, Finnish citizen  
Member of the Group Executive Team since 2016  
Employed by UPM-Kymmene Corporation since 2014

Financial Analyst, Enso Group 1997–1998. Business Operations Manager, Nokia Networks in Finland and Italy 1998–2001. Engagement Manager & Associate, McKinsey & Company 2002–2004. Several management positions at Stora Enso in Finland, Sweden and the UK 2004–2009. Chief Development Officer, member of the Group Executive Board, Amer Sports 2009–2014. Senior Vice President, Head of Global Operations, Amer Sports 2012–2014. Senior Vice President, EMEA, UPM Raflatac 2014–2016.

Executive Vice President, Strategy  
M.Sc. (Eng.)  
Born 1971, Finnish citizen  
Member of the Group Executive Team since 2013.  
Employed by UPM-Kymmene Corporation since 2007.

Management Consultant at Jaakko Pöyry Consulting Oy 1998–2000. M&A Advisor at JP Capital International Limited in the UK 2000–2006. Investment Manager at Finnish Industry Investment Ltd 2006–2007. Director, M&A, UPM-Kymmene Corporation 2007–2010. Senior Vice President, Corporate Strategy 2010–2013.



**Kari Ståhlberg**



**Juha Mäkelä**

General Counsel  
LL.M.  
Born 1962, Finnish citizen  
Member of the Group Executive Team since 2008.  
Employed by UPM-Kymmene Corporation since 2005.

Several positions in law firms 1991–1996. Positions as legal counsel and senior legal counsel in KONE Corporation 1997–2004. Group General Counsel since 2005.

Supervisory Board member of Kemijoki Oy.

Executive Vice President, UPM Biorefining  
M.Sc. (Econ.)  
Born 1967, Finnish citizen  
Member of the Group Executive Team since 2010.  
Employed by UPM-Kymmene Corporation since 2006.

Several management positions at Nokia Corporation in Finland, Denmark, UK and Hungary 1993–2006. Senior Vice President, UPM Sourcing 2006–2010. President, Energy and Pulp Business Group 2010–2013.

Board member of the Finnish Forest Industries Federation (FFIF).



**Heikki Vappula**

# GRI content index – short version

UPM follows the Global Reporting Initiative's (GRI) sustainability reporting guidelines (version G4) in its corporate responsibility reporting. The reporting follows the core option of the GRI G4 guidelines.

This shortened version of the GRI index shows where the specific G4 indicators are addressed in the annual report and UPM's internet pages. More information on the general standard disclosures as well as on omissions, further explanation and disclosures on the management approach can be found in the actual GRI content index which is available at [www.upm.com/responsibility](http://www.upm.com/responsibility).

AR = Annual Report 2016 GRI index = GRI content index, published as pdf on [www.upm.com](http://www.upm.com).

## General Standard Disclosures <sup>1)</sup>

ASPECT	INDICATORS	LOCATION	ASSURANCE <sup>2)</sup>
Strategy and Analysis	G4 – 1 to 2	AR	
Organizational Profile	G4 – 3 to 16	AR, GRI index	G4 – 10 to 11
Identified Material Aspects and Boundaries	G4 – 17 to 23	AR, GRI index	
Stakeholder Engagement	G4 – 24 to 27	AR	
Report Profile	G4 – 28 to 33	AR	
Governance	G4 – 34 to 41, 44-47, 49	AR, GRI index	
Ethics and Integrity	G4 – 56	AR	

## Specific standard disclosures

CODE	GRI CONTENT	LOCATION	OMISSION <sup>1)</sup>	ASSURANCE <sup>2)</sup>
G4 – DMA	Disclosures on management approach (DMA)	GRI index		
<b>Category: Economic</b>				
<b>Economic Performance</b>				
G4 – EC1	Direct economic value generated and distributed	AR 55		x
G4 – EC2	Financial implications and other risks and opportunities due to climate change	AR 20–23, 66	x	x
G4 – EC3	Coverage of the organization's defined benefit plan obligations	AR 119-122		x
G4 – EC4	Financial assistance received from government	AR 38, 116		x
<b>Market Presence, Economic Impacts, Procurement Practices</b>				
G4 – EC6	Proportion of senior management hired from the local community	AR 42		x
G4 – EC8	Significant indirect economic impacts	AR 54		x
G4 – EC9	Proportion of spending on locally-based suppliers	AR 61		x
<b>Category: Environment</b>				
<b>Materials</b>				
G4 – EN1	Materials used by weight or volume	AR 70, web		x
G4 – EN2	Percentage of materials used that are recycled input materials	AR 61, web		x
<b>Energy</b>				
G4 – EN3	Energy consumption within the organization	AR 60, 67, 70-71, web		x
G4 – EN5	Energy intensity	AR 169		x
G4 – EN6	Reduction of energy consumption	AR 66		x
<b>Water</b>				
G4 – EN8	Total water withdrawal by source	AR 70		x
G4 – EN9	Water sources significantly affected by withdrawal of water	AR 65, web		x
<b>Biodiversity</b>				
G4 – EN11	Location and size of land holdings in biodiversity-rich habitats	AR 58, web		x
G4 – EN12	Significant impacts in protected or other biodiversity-rich areas	AR 58, web		x
G4 – EN13	Habitats protected or restored	AR 58, web		x
G4 – EN14	Species with extinction risks in areas affected by operations	web		x
<b>Emissions</b>				
G4 – EN15	Direct greenhouse gas emissions (Scope 1)	AR 71, 169, web		x
G4 – EN16	Indirect greenhouse gas emissions (Scope 2)	AR 169, web		x
G4 – EN17	Other indirect greenhouse gas emissions (Scope 3)	AR 169, web		x
G4 – EN18	Greenhouse gas emissions intensity	AR 169		x
G4 – EN19	Reduction of Greenhouse gas emissions	AR 66		x
G4 – EN21	NOx, SOx, and other significant air emissions	AR 71		x
<b>Effluents and Waste</b>				
G4 – EN22	Total water discharge by quality and destination	AR 64, 71		x
G4 – EN23	Total amount of waste by type and disposal method	AR 71, web		x
G4 – EN24	Total number and volume of significant spills	AR 63		x
G4 – EN26	Identity, size, protected status, and biodiversity value of water bodies and related habitats significantly affected by the organization	GRI index		x
<b>Products and Services</b>				
G4 – EN27	Mitigating environmental impacts of products and services	AR 19, 25, 27, 31, 37, 39, 64–69		x
<b>Compliance</b>				
G4 – EN29	Significant fines and non-monetary sanctions for non-compliance	AR 63		x
<b>Transport</b>				
G4 – EN30	Significant environmental impacts of transporting	AR 61, 169, web		x
<b>Overall</b>				
G4 – EN31	Total environmental protection expenditures and investments	AR 63		x
<b>Supplier Environmental Assessment</b>				
G4 – EN32	New suppliers screened against environmental criteria	AR 59		x
G4 – EN33	Significant negative impacts on environment in the supply chain	GRI index	x	x
<b>Grievance Mechanisms</b>				
G4 – EN34	Grievances about environmental impacts	AR 49		x

CONTENTS

CODE	GRI CONTENT	LOCATION	OMISSION <sup>1)</sup>	ASSURANCE <sup>2)</sup>
<b>Category: Social – Labor Practices and Decent Work</b>				
<b>Employment, Labor/Management Relations</b>				
G4 – LA1	Total number and rate of employee turnover	AR 42, web		x
G4 – LA4	Minimum notice period(s) regarding operational changes	AR 43		x
<b>Occupational Health and Safety</b>				
G4 – LA5	Workforce represented in formal joint health and safety committees	AR 45	x	x
G4 – LA6	Injuries, occupational diseases, lost days, absentee rate and fatalities	AR 42, 44–45	x	x
G4 – LA7	Workers with high incidence or high risk of diseases related to their occupation	AR 45		x
<b>Training and Education</b>				
G4 – LA9	Average hours of training per year per employee	AR 42	x	x
G4 – LA10	Programs for skills management and lifelong learning	AR 41, 43		x
G4 – LA11	Employees receiving performance and career development reviews	AR 19, 41	x	x
UPM – 1	Human capital return on investment (UPM indicator)	GRI index		x
<b>Diversity and Equal Opportunity, Equal remuneration for Women and Men</b>				
G4 – LA12	Composition of governance bodies and breakdown of employees	AR 42, 77, web	x	x
G4 – LA13	Ratio of basic salary and remuneration of women to men	AR 168	x	x
<b>Supplier Assessment for Labor Practices</b>				
G4 – LA14	New suppliers screened using labor practices criteria	AR 59		x
G4 – LA15	Significant negative impacts for labor practices in the supply chain	GRI index	x	x
<b>Labor Practices Grievance Mechanisms</b>				
G4 – LA16	Number of grievances about labor practices	AR 49		x
<b>Category: Social – Human rights</b>				
<b>Investment</b>				
G4 – HR1	Human rights screening or clauses in significant investment agreements	GRI index		x
G4 – HR2	Employee training on human rights policies or related procedures	GRI index		x
<b>Non-discrimination, Freedom of Association and Collective Bargaining</b>				
G4 – HR3	Incidents of discrimination and corrective actions taken	AR 49		x
G4 – HR4	Supporting the right to freedom of association and collective bargaining in risk areas	GRI index		x
<b>Child labor, Forced and compulsory labor, Indigenous rights</b>				
G4 – HR5	Operations and suppliers identified as having significant risk of child labor	GRI index		x
G4 – HR6	Operations and suppliers identified as having significant risk of forced or compulsory labor	GRI index		x
G4 – HR8	Incidents of violations involving rights of indigenous people	GRI index		x
<b>Supplier Human Rights Assessment</b>				
G4 – HR10	New suppliers screened using human rights criteria	AR 59		x
G4 – HR11	Significant negative human rights impacts in the supply chain	GRI index	x	x
<b>Human Rights Grievance Mechanisms</b>				
G4 – HR12	Number of grievances about human rights impacts	AR 49		x
<b>Category: Social – Society</b>				
<b>Local Communities</b>				
G4 – SO1	Local community engagement, impact assessments, and development programs	GRI index	x	x
G4 – SO2	Operations with significant negative impacts on local communities	GRI index		x
<b>Anti-corruption</b>				
G4 – SO3	Total number and percentage of operations assessed for risks related to corruption	GRI index	x	x
G4 – SO4	Communication and training on anti-corruption policies and processes	GRI index	x	x
G4 – SO5	Confirmed incidents of corruption and actions taken	AR 49		x
<b>Public Policy</b>				
G4 – SO6	Political contributions by country and recipient/beneficiary	AR 49		x
<b>Anti-competitive Behavior</b>				
G4 – SO7	Legal actions for anti-competitive behaviour, anti-trust, and monopoly practices and their outcomes	GRI index		x
<b>Compliance</b>				
G4 – SO8	Significant fines and non-monetary sanctions for non-compliance with laws and regulations	GRI index		x
<b>Supplier Assessment for Impacts on Society</b>				
G4 – SO9	New suppliers screened using criteria for impacts on society	AR 59		x
G4 – SO10	Significant negative impacts on society in the supply chain	GRI index	x	x
<b>Grievance Mechanisms for Impacts on Society</b>				
G4 – SO11	Grievances about impacts on society	AR 49		x
<b>Category: Social – Product Responsibility</b>				
<b>Customer Health and Safety</b>				
G4 – PR1	Product categories for which health and safety impacts are assessed for improvement	AR 57		x
<b>Product and Service Labeling, Marketing Communications</b>				
G4 – PR3	Type of product information required by procedures	AR 57		x
G4 – PR5	Results of surveys measuring customer satisfaction	AR 52		x
G4 – PR6	Sale of banned or disputed products	GRI index		x
<b>Compliance</b>				
G4 – PR9	Significant fines and non-monetary sanctions for non-compliance with laws and regulations	GRI index		x

<sup>1)</sup> See actual GRI content index for general standard disclosure as well as for omissions and explanations.

<sup>2)</sup> The assurance report by PricewaterhouseCoopers Oy can be found on page 88.



# Independent Practitioner's Assurance Report

To the Management of UPM-Kymmene Corporation

We have been engaged by the Management of UPM-Kymmene Corporation (business identity code 1041090-0, hereinafter also "the Company") to perform a limited assurance engagement on selected corporate responsibility information for the reporting period 1 January 2016 to 31 December 2016, disclosed in UPM-Kymmene Corporation's Annual Report 2016 and on its website in section "Responsibility" (hereinafter "the CR Reporting"). The assured information is indicated in the Company's GRI Content Index 2016 on the Company's website.

Furthermore, the assurance engagement has covered UPM-Kymmene Corporation's adherence to the AA1000 AccountAbility Principles with moderate (limited) level of assurance.

## Management's responsibility

The Management of UPM-Kymmene Corporation is responsible for preparing the CR Reporting in accordance with the Reporting criteria as set out in the Company's reporting instructions and the G4 Sustainability Reporting Guidelines of the Global Reporting Initiative. The Management of UPM-Kymmene Corporation is also responsible for such internal control as the management determines is necessary to enable the preparation of CR Reporting that is free from material misstatement, whether due to fraud or error.

The Management of UPM-Kymmene Corporation is also responsible for the Company's adherence to the AA1000 AccountAbility Principles of inclusivity, materiality and responsiveness as set out in AccountAbility's AA1000 AccountAbility Principles Standard 2008.

## Practitioner's responsibility

Our responsibility is to express a limited assurance conclusion on the CR Reporting and on the Company's adherence to the AA1000 AccountAbility Principles based on the procedures we have performed and the evidence we have obtained. We conducted our limited assurance engagement in accordance with the International Standard on Assurance Engagements (ISAE) 3000 (Revised) "Assurance Engagements Other than Audits or Reviews of Historical Financial Information". That Standard requires that we plan and perform the engagement to obtain limited assurance about whether the CR Reporting is free from material misstatement.

In addition, we have conducted our work in accordance with the AA1000 Assurance Standard 2008. For conducting a Type 2 assurance engagement as agreed with the Company, the AA1000AS (2008) requires planning and performing of the assurance engagement to obtain moderate (limited) assurance on whether any matters come to our attention that cause us to believe that UPM-Kymmene Corporation does not adhere, in all material respects, to the AA1000 AccountAbility Principles and that the CR Reporting is not reliable, in all material respects, based on the Reporting criteria.

In a limited assurance engagement the evidence-gathering procedures are more limited than for a reasonable assurance engagement,

and therefore less assurance is obtained than in a reasonable assurance engagement. An assurance engagement involves performing procedures to obtain evidence about the amounts and other disclosures in the CR Reporting, and about the Company's adherence to the AA1000 AccountAbility Principles. The procedures selected depend on the practitioner's judgement, including an assessment of the risks of material misstatement of the CR Reporting and an assessment of the risks of the Company's material nonadherence to the AA1000 AccountAbility Principles.

Our work consisted of, amongst others, the following procedures:

- Interviewing senior management of the Company.
- Interviewing employees from various organisational levels of the Company with regards to materiality, stakeholder expectations, meeting of those expectations, as well as stakeholder engagement.
- Assessing stakeholder inclusivity and responsiveness based on the Company's documentation and internal communication.
- Assessing the Company's defined material corporate responsibility topics as well as assessing the CR Reporting based on these topics.
- Visiting the Company's Head Office and conducting web conferences with two sites in Finland and one site in the United States.
- Interviewing employees responsible for collecting and reporting the information presented in the CR Reporting at the group level as well as at the site level.
- Assessing how group employees apply the reporting instructions and procedures of the Company.
- Testing the accuracy and completeness of the information from original documents and systems on a sample basis.
- Testing the consolidation of information and performing recalculations on a sample basis.

## Limited assurance conclusion

Based on the procedures we have performed and the evidence we have obtained, nothing has come to our attention that causes us to believe that UPM-Kymmene Corporation does not adhere, in all material respects, to the AA1000 AccountAbility Principles.

Furthermore nothing has come to our attention that causes us to believe that UPM-Kymmene Corporation's CR Reporting for the reporting period ended 31 December 2016 is not properly prepared, in all material respects, in accordance with the Reporting criteria, or that the CR Reporting is not reliable, in all material respects, based on the Reporting criteria.

When reading our assurance report, the inherent limitations to the accuracy and completeness of sustainability information should be taken into consideration.

Our assurance report has been prepared in accordance with the terms of our engagement. We do not accept, or assume responsibility to anyone else, except to UPM-Kymmene Corporation for our work, for this report, or for the conclusions that we have reached.

## Observations and recommendations

Based on the procedures we have performed and the evidence we have obtained, we provide the following observations and recommendations in relation to UPM-Kymmene Corporation's adherence to the AA1000 AccountAbility Principles. These observations and recommendations do not affect the conclusions presented earlier.

**Regarding Inclusivity:** UPM-Kymmene Corporation has processes in place for stakeholder inclusivity and engagement. Stakeholder Relations coordinates stakeholder engagement at the group level, while businesses are responsible for local activity. We recommend that the Company continues to enhance internal collaboration and knowledge sharing within the group in the stakeholder engagement.

**Regarding Materiality:** UPM-Kymmene Corporation has a systematic process in place to evaluate and determine the materiality of corporate responsibility topics. Materiality analysis is updated annually. We recommend that the Company considers using stakeholder panels also to obtain feedback on the materiality analysis as well as on the responsibility focus areas, performance and reporting.

**Regarding Responsiveness:** UPM-Kymmene Corporation has processes in place for responding to stakeholder needs and concerns. We recommend that the Company continues to enhance the use of social media in its stakeholder engagement.

## Practitioner's independence, qualifications and quality control

We have complied with the independence and other ethical requirements of the *Code of Ethics for Professional Accountants* issued by the International Ethics Standards Board for Accountants, which is founded on fundamental principles of integrity, objectivity, professional competence and due care, confidentiality and professional behaviour.

Our multi-disciplinary team of corporate responsibility and assurance specialists possesses the requisite skills and experience within financial and non-financial assurance, corporate responsibility strategy and management, social and environmental issues, as well as the relevant industry knowledge, to undertake this assurance engagement.

PricewaterhouseCoopers Oy applies International Standard on Quality Control 1 and accordingly maintains a comprehensive system of quality control including documented policies and procedures regarding compliance with ethical requirements, professional standards and applicable legal and regulatory requirements.

Helsinki 17 February 2017

## PricewaterhouseCoopers Oy

Merja Lindh  
Authorised Public  
Accountant  
(KHT)

Maj-Lis Steiner  
Authorised Public  
Accountant  
(KHT)

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# Report of the Board of Directors

## Market environment in 2016

Global economic growth in 2016 slowed slightly compared with the previous year. Uncertainty about future economic prospects in Europe increased mainly due to the United Kingdom vote in favour of leaving the European Union, while growth momentum in the US slowed modestly.

Growth in emerging markets and developing economies strengthened slightly. However, the development of these economies was uneven and remained weaker than in the past. Low prices for oil and other commodities affected economic growth in several raw material-dependent countries. Energy and other commodity prices increased during the course of the year from the low levels in the beginning of the year.

In China, growth continued to slow although not as much as feared at the start of the year following policy to support growth. Growth in China remained higher than the average for emerging markets and developing economies, however. In emerging Asia and India solid growth continued, while the economies of Brazil and Russia remained weak.

As a result of continued loose monetary policy in the euro area, interest rate hikes in the US and prospects of fiscal stimulus following the US presidential election, the euro weakened against the US dollar towards year end. The British pound weakened sharply in the second half of 2016 following the referendum in June. The euro weakened against the Japanese yen.

For UPM's businesses and products, the market demand was mostly favourable in 2016.

Chemical pulp demand increased strongly. As a result of increased supply, hardwood pulp prices decreased during the first half of the year and levelled off in the second half of the year. A moderate price slide in softwood pulp in the first half of the year was reversed in the second half of the year. In 2016, the average market pulp price decreased compared to the previous year.

Demand for advanced biofuels continued to be strong.

Electricity consumption in the Nordic countries increased slightly. In the first half of 2016, electricity prices were impacted by good hydrological balance and low coal prices. Electricity market price increased during the course of the year driven by the deteriorating hydrological balance and increasing coal prices. For the full year, the average Finnish area spot price was higher than in 2016.

Label materials demand increased in all regions. Likewise, label and release paper demand increased globally. In Asia, office paper demand continued to grow.

The market environment for plywood improved gradually in Europe, and demand is estimated to have increased compared to the previous year. The impact of low-priced imports in the beginning of the year eased in the second quarter and since then, prices have started to recover slightly. Sawm timber demand was good, while market prices remained at low levels.

In Europe, demand for graphic paper grades was 4% lower than in the previous year.

## Key figures

	2016	2015	2014
Sales, EURm	9,812	10,138	9,868
Comparable EBITDA, EURm	1,560	1,350	1,306
% of sales	15.9	13.3	13.2
Operating profit, EURm	1,135	1,142	674
Comparable EBIT, EURm	1,143	916	866
% of sales	11.6	9.0	8.8
Profit before tax, EURm	1,080	1,075	667
Comparable profit before tax, EURm	1,089	849	793
Profit for the period, EURm	880	916	512
Comparable profit for the period, EURm	879	734	638
Earnings per share (EPS), EUR	1.65	1.72	0.96
Comparable EPS, EUR	1.65	1.38	1.20
Return on equity (ROE), %	10.9	11.9	6.9
Comparable ROE, %	10.9	9.5	8.5
Return on capital employed (ROCE), %	10.5	10.3	6.5
Comparable ROCE, %	10.6	8.3	7.6
Operating cash flow, EURm	1,686	1,185	1,241
Operating cash flow per share, EUR	3.16	2.22	2.33
Equity per share at end of period, EUR	15.43	14.89	14.02
Capital employed at the end of period, EURm	10,657	11,010	10,944
Net debt, EURm	1,131	2,100	2,401
Gearing ratio at end of period, %	14	26	32
Personnel at the end of period	19,310	19,578	20,414

» Refer Note 10.2, Alternative performance measures, in financial statements for definitions of key figures.

## Results

### 2016 compared with 2015

Sales for 2016 were EUR 9,812 million, 3% lower than the EUR 10,138 million in 2015, mainly due to lower sales prices in several businesses. Delivery volumes grew in UPM Biorefining, UPM Specialty Papers, UPM Raflatac and UPM Plywood, and decreased in UPM Paper ENA and UPM Energy. Sales were also impacted by the sale of Tilhill Forestry business in the UK in Q3 2015.

Comparable EBIT increased by 25% to EUR 1,143 million, 11.6 % of sales (916 million, 9.0%). Variable and fixed costs were significantly lower than in the comparison period, partly driven by UPM's ongoing profit improvement measures. The company's growth projects contributed positively to 2016 comparable EBIT, with pulp, renewable diesel, speciality paper and self-adhesive label material deliveries as well as fine papers in Asia increasing on the previous year. Realised currency hedges had only a minor impact on 2016 comparable EBIT, whereas they had a significant negative impact in the comparison period. Changes in sales prices in UPM's product range had a clear negative impact on the comparable EBIT.

Depreciation, excluding items affecting comparability, totalled EUR 510 million (524 million). The increase in the fair value of forest assets net of wood harvested, excluding items affecting comparability, was EUR 88 million (87 million).

Operating profit totalled EUR 1,135 million (1,142 million). Items affecting comparability in operating profit totalled net charges of EUR 7 million (gains of EUR 226 million). The sale of the Schwedt newsprint mill site and relevant assets resulted in a gain of EUR 47 million. Closure of the Madison Paper Industries joint operation resulted in charges of EUR 24 million (EUR 46 million in UPM Paper ENA and a corresponding elimination of EUR 22 million in eliminations and reconciliations). The planned closure of the two SC paper machines at UPM Steyrermühl in Austria and UPM Augsburg in Germany resulted in restructuring charges of EUR 64 million. The fair value change of unrealised cash flow and commodity hedges resulted in a gain of EUR 27 million.

Net interest and other finance costs were EUR 49 million (68 million). The exchange rate and fair value gains and losses resulted in a loss of EUR 7 million (gain of EUR 1 million). Income taxes totalled EUR 200 million (159 million). Items affecting comparability in taxes were EUR 11 million (EUR -44 million).

Profit for 2016 was EUR 880 million (916 million), and comparable profit was EUR 879 million (734 million).

## Financing and cash flow

In 2016, cash flow from operating activities before capital expenditure and financing totalled EUR 1,686 million (1,185 million). Working capital decreased by EUR 195 million (increased by EUR 8 million) during the period.

A dividend of EUR 0.75 per share (totaling EUR 400 million) was paid on 21 April 2016, in accordance with the decision of the Annual General Meeting held on 7 April 2016.

Net interest-bearing liabilities decreased to EUR 1,131 million at the end of the period (2,100 million). The gearing ratio as of 31 December 2016 was 14% (26%).

On 31 December 2016, UPM's cash funds and unused committed credit facilities totalled EUR 1.6 billion.

## Capital expenditure

In 2016, capital expenditure excluding investments in shares was EUR 325 million, 3.3% of sales (486 million, 4.8% of sales). Total capital expenditure, excluding investments in shares, in 2017 is estimated to be approximately EUR 350 million.

On 23 April 2015, UPM announced that it would strengthen its position as the leading plywood manufacturer in Europe by expanding the Otepää plywood mill in Estonia. The expansion almost doubled the mill's production to 90,000 m<sup>3</sup> per annum. In addition to the mill expansion, a new bio power plant was built at the mill site. The investment in Otepää totalled EUR 40 million and the expansion was completed during Q4 2016.

On 16 June 2015, UPM announced it would further strengthen the efficiency, competitiveness and optimisation of the Kaukas pulp mill in Lappeenranta, Finland. UPM invested EUR 50 million to modernise both the pulp-drying machines and installed a new baling line at the mill. The investment was completed during Q4 2016. The investment will benefit the entire Kaukas mill integrate thanks to increased resource efficiency and operational flexibility.

In June 2013, UPM announced that it was participating in the share issue from Pohjolan Voima Oy to finance the Olkiluoto 3 nuclear power plant project. UPM's share of the issue is EUR 119 million, of which EUR 93 million has been paid during the previous years. The remaining part of the share issue will be implemented in the coming years based on the financing needs of the project.

## Personnel

In 2016, UPM had an average of 19,858 employees (20,246). At the beginning of the year, the number of employees was 19,578 and at the end of Q4 2016, it was 19,310.

Further information (unaudited) about personnel is available in » Stakeholders section in UPM Annual report 2016.

## Events during 2016

On 14 March, UPM announced the closure of Madison Paper Industries in the US. Madison Paper Industries was a joint operation between UPM-Kymmene Inc. and Northern SC Paper Corp., a subsidiary of the New York Times Company. The mill ceased production on 21 May. With the closure of the mill, UPM reduced its supercalendered paper capacity by 195,000 tonnes. The closure impacted 214 employees located at the mill site. Hydropower assets located at the mill site will be sold.

On 23 March, UPM announced that UPM Biochemicals will establish an innovation unit at the Biomedicum research and educational centre in Meilahti, Helsinki. The unit will focus on biomedical applications for the cellulose nanofibril technology developed by UPM.

On 26 April, UPM announced it had signed an agreement to sell its Schwedt newsprint mill site and relevant assets to LEIPA Georg Leinfelder GmbH with the aim of a conversion into liner production. The mill site and relevant assets were transferred from UPM to LEIPA Georg Leinfelder GmbH on 1 July 2016. The entire personnel of the mill transferred to LEIPA as old employees. The transaction price was EUR 70 million, and UPM recorded a gain of EUR 47 million as an item affecting comparability in its Q3 2016 results. As part of the transaction, the parties entered into a contract manufacturing agreement for newsprint for a transition period lasting at the latest until the end of 2017. The mill's annual capacity is 280,000 tonnes of newsprint.

On 26 May, UPM-Kymmene Corporation announced proceeding with its plan to change its corporate structure in Finland to better match its current business structure. The plan was originally announced on 10 December 2015. Three new subsidiaries were established in Finland: UPM Energy Oy, UPM Paper Asia Oy and UPM Paper ENA Oy. The personnel and assets of UPM Energy, UPM Specialty Papers

## Events after the balance sheet date

The group's management is not aware of any significant events occurring after 31 December 2016.

## Outlook for 2017

UPM's profitability improved significantly in 2016 and is expected to remain on a good level in 2017.

Demand growth is expected to continue for most of UPM's businesses, while demand decline is expected to continue for UPM Paper ENA. The focused growth projects continue to contribute gradually to UPM's performance.

Following a deflationary environment in recent years, 2017 is expected to show modest input cost inflation. UPM will continue measures to reduce fixed and variable costs to mitigate this.

2017 starts with lower pulp prices and lower availability of hydropower than in the beginning of 2016.

and UPM Paper ENA (Europe & North America) in Finland were transferred to the new companies on 1 July 2016. UPM Raflatac and UPM Plywood already operated in their own subsidiaries in Finland. UPM Biorefining remains part of UPM-Kymmene Corporation.

On 4 July UPM announced it will invest EUR 98 million in UPM Kymi pulp mill in Finland to further strengthen its position as a supplier of bleached chemical pulp for growing consumer and industrial end-use segments like tissue and speciality paper, as well as packaging papers and board. Kymi's annual pulp production capacity is expected to increase to 870,000 tonnes of bleached northern softwood and birch pulp by the end of 2017. The investment will further improve UPM Kymi's cost-competitiveness and environmental performance.

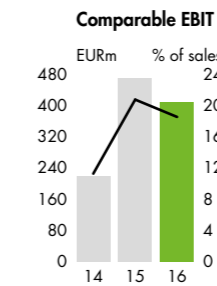
On 11 October, UPM announced it will build a new coating line at its label stock factory in Wroclaw, Poland. By introducing a new coating line together with related reel handling and slitting capacity additions, UPM Raflatac aims to meet the increasing demand for self-adhesive label stock in Europe. Production of the new line is planned to commence in the first half of 2018. The investment will total approximately EUR 35 million.

On 3 November, UPM announced plans to permanently reduce its graphic paper capacity in Europe by 305,000 tonnes. The capacity reductions are planned to include SC paper machine 3 at UPM Steyrermühl, Austria and SC paper machine 2 at UPM Augsburg, Germany. The number of persons affected by the plan is estimated to be 150 for UPM Augsburg and 125 for UPM Steyrermühl. The plan would result in annual cost savings of approximately EUR 30 million. UPM booked charges of EUR 64 million as an item affecting comparability in Q4 2016.

## Business area reviews

### UPM Biorefining

UPM Biorefining consists of pulp, timber and biofuels businesses. UPM has three pulp mills in Finland and one mill and plantation operation in Uruguay. UPM operates four sawmills in Finland. UPM's biorefinery producing wood-based renewable diesel started up in early 2015. The main customers of UPM Biorefining are tissue, speciality paper and board producers in the pulp industry, fuel distributors in the biofuel industry and construction and joinery industries in the timber sector.



	2016	2015
Sales, EURm	2,206	2,272
Comparable EBITDA, EURm	548	614
% of sales	24.9	27.0
Change in fair value of forest assets and wood harvested, EURm	29	21
Share of results of associates and joint ventures, EURm	2	1
Depreciation, amortisation and impairment charges, EURm	-173	-169
Operating profit, EURm	406	466
% of sales	18.4	20.5
Items affecting comparability in operating profit, EURm <sup>1)</sup>	-	-1
Comparable EBIT, EURm	406	467
% of sales	18.4	20.6
Capital employed (average), EURm	3,231	3,191
Comparable ROCE, %	12.6	14.6
Pulp deliveries, 1,000 t	3,419	3,224

<sup>1)</sup> In 2015, items affecting comparability include a charge of EUR 1 million relating to increase of pension obligations due to Finnish employee pension reform.

### 2016 compared with 2015

Comparable EBIT for UPM Biorefining decreased. Higher pulp delivery volumes and lower variable costs partly offset the negative impact of lower pulp sales prices. The average price for UPM's pulp deliveries decreased by 10%. Production efficiency improved significantly at the Lappeenranta biorefinery and profitability was supported by the strong biofuel market. In sawmill operations profitability improved thanks to increased delivery volumes and improved production efficiency.

### Market environment

Chemical pulp demand continued to be strong. Demand growth was primarily recorded in Asia, particularly in China.

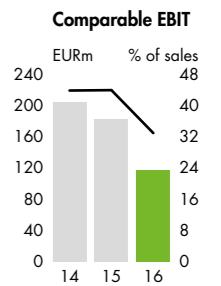
In Europe in 2016, the average market price in euros of NBSK was 6% lower and the market price of BHKP was 11% lower than in 2015. In China, the average market price in USD of NBSK was 8% lower and BHKP was 19% lower than in 2015.

Demand for advanced renewable diesel continued to be strong.

Sawn timber demand was good, while market prices remained stable at low levels.

### UPM Energy

UPM Energy creates value through cost competitive, low-emission electricity generation and through physical electricity and financial trading. UPM Energy is the second largest electricity producer in Finland. UPM's power generation capacity consists of hydropower, nuclear power and condensing power.



	2016	2015
Sales, EURm	357	415
Comparable EBITDA, EURm	126	192
% of sales	35.4	46.3
Share of results of associates and joint ventures, EURm	-1	-
Depreciation, amortisation and impairment charges, EURm	-9	-11
Operating profit, EURm	116	155
% of sales	32.7	37.3
Items affecting comparability in operating profit, EURm <sup>1)</sup>	-	-26
Comparable EBIT, EURm	116	181
% of sales	32.7	43.6
Capital employed (average), EURm	2,340	2,716
Comparable ROCE, %	5.0	6.7
Electricity deliveries, GWh	8,782	8,966

<sup>1)</sup> In 2015, items affecting comparability of EUR 7 million relate to restructuring charges regarding PVO Thermal closure and EUR 19 million to project expenses of Olkiluoto 4 nuclear power plant.

### 2016 compared with 2015

Comparable EBIT for UPM Energy decreased mainly due to the lower average electricity sales price, lower hydropower generation volumes and higher costs in partly owned energy companies.

UPM's average electricity sales price decreased by 12% to EUR 33.9/MWh (38.7/MWh).

### Market environment

The Nordic hydrological balance deteriorated during the first nine months of 2016 from a large surplus at the beginning of the year to a deficit by October. During the fourth quarter the balance improved and was close to the long-term average level at year end.

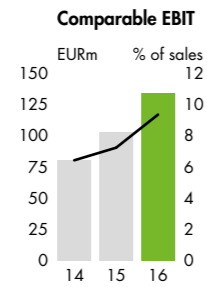
Coal prices increased during the course of the year, mainly due to output cuts. The CO<sub>2</sub> emission allowance price of EUR 5.1/tonne at the end of the period was lower than at the end of the comparison period (EUR 8.0/tonne).

In the first half of 2016, electricity prices were impacted by good hydrological balance and low coal prices. The electricity market price increased during the course of the year, driven by the deteriorating hydrological balance and increasing coal prices. For the full year the average Finnish area spot price was EUR 32.5/MWh in 2016, 9% higher than in 2015 (EUR 29.7/MWh).



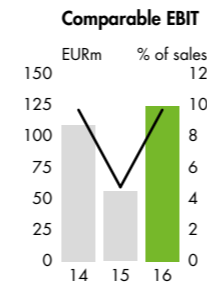
## UPM Raflatac

UPM Raflatac manufactures self-adhesive label materials for product and information labelling for label printers and brand owners in the food, personal care, pharmaceutical and retail segments, for example. UPM Raflatac is the second-largest producer of self-adhesive label materials worldwide.



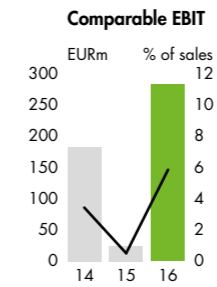
## UPM Specialty Papers

UPM Specialty Papers serves growing global markets with label papers and release liners, fine papers in Asia and flexible packaging in Europe. The operations consist of the UPM Changshu and UPM Tervasaari mills in China and Finland, as well as label and packaging papers production lines at the UPM Jämsänkoski mill in Finland. The main customers are retailers, printers, publishers, distributors and paper converters.



## UPM Paper ENA

UPM Paper ENA offers graphic papers for advertising, magazines, newspapers and home and office. The business has extensive low-cost operations consisting of 15 efficient paper mills in Europe and the United States, a global sales network and an efficient logistic system. The main customers are publishers, cataloguers, retailers, printers and merchants.



	2016	2015
Sales, EURm	1,437	1,409
Comparable EBITDA, EURm	166	137
% of sales	11.6	9.7
Depreciation, amortisation and impairment charges, EURm	-33	-35
Operating profit, EURm	134	99
% of sales	9.3	7.0
Items affecting comparability in operating profit, EURm <sup>1)</sup>	-	-3
Comparable EBIT, EURm	133	102
% of sales	9.3	7.2
Capital employed (average), EURm	524	581
Comparable ROCE, %	25.5	17.6

<sup>1)</sup> In 2015, items affecting comparability relate to restructurings.

	2016	2015
Sales, EURm	1,273	1,168
Comparable EBITDA, EURm	214	141
% of sales	16.8	12.1
Depreciation, amortisation and impairment charges, EURm	-92	-86
Operating profit, EURm	123	55
% of sales	9.6	4.7
Items affecting comparability in operating profit, EURm	-	-
Comparable EBIT, EURm	123	55
% of sales	9.6	4.7
Capital employed (average), EURm	1,012	1,012
Comparable ROCE, %	12.1	5.4
Paper deliveries, 1,000 t	1,556	1,401

### 2016 compared with 2015

Comparable EBIT for UPM Specialty Papers increased due to lower variable costs and higher delivery volumes, more than offsetting a less favourable sales mix and lower paper prices. Net change in currencies, including hedges, had a positive impact.

### Market environment

Fine paper demand remained stable in the Asia-Pacific region. The development varied by product and market segment. Growth continued in office paper demand. In 2016, the average price was lower compared with 2015.

Label and release paper demand increased globally. Price development varied between the regions and was on average stable.

	2016	2015
Sales, EURm	4,818	5,056
Comparable EBITDA, EURm	448	213
% of sales	9.3	4.2
Share of results of associates and joint ventures, EURm	2	1
Depreciation, amortisation and impairment charges, EURm	-214	-190
Operating profit, EURm	223	32
% of sales	4.6	0.6
Items affecting comparability in operating profit, EURm <sup>1)</sup>	-57	8
Comparable EBIT, EURm	280	24
% of sales	5.8	0.5
Capital employed (average), EURm	1,964	2,289
Comparable ROCE, %	14.3	1.0
Paper deliveries, 1,000 t	8,057	8,370

<sup>1)</sup> In 2016, items affecting comparability include impairment charges of EUR 20 million relating to Madison mill closure, EUR 23 million relating planned closure of Steyrermühl paper machine 3 and EUR 1 million relating to planned closure of Augsburg paper machine 2. In addition, items affecting comparability include restructuring charges amounting to EUR 26 million relating to Madison mill closure, EUR 22 million relating to planned closure of Steyrermühl paper machine 3, EUR 18 million relating to planned closure of Augsburg paper machine 2 and EUR 4 million income relating to reversals of restructuring provisions of prior capacity closures. Capital gains affecting the comparability comprise of a gain of EUR 47 million relating to sale of Schwedt mill and EUR 2 million relating to sale of other assets. In 2015, items affecting comparability include net income of EUR 10 million related to restructurings and a charge of EUR 2 million related to increase of pension obligation due to Finnish employee pension reform.

### 2016 compared with 2015

Comparable EBIT increased significantly for UPM Paper ENA, mainly due to lower variable and fixed costs, more than offsetting the negative impacts of lower sales prices and delivery volumes. The decrease in variable and fixed costs was partly due to ongoing profit improvement measures. In the comparison period, realised currency hedges had a negative impact.

The average price for UPM's paper deliveries in euros decreased by 2% due to an unfavourable development outside the euro area. In the euro area, the average price of UPM's paper deliveries increased by 1%.

### Market environment

In 2016, demand for graphic papers in Europe was 4% lower than the previous year. Newsprint demand decreased by 3%, magazine paper by 4% and fine paper by 6% compared with the previous year.

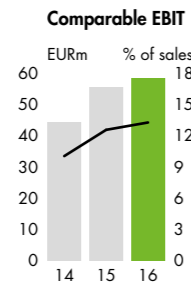
In 2016, publication paper prices were on average 4% lower than in 2015.

In 2016, fine paper prices were on average 2% lower than in 2015.

In 2016, demand for magazine papers in North America decreased by 5% compared with the previous year. The average US dollar price for magazine papers was 5% lower than in 2015.

## UPM Plywood

UPM Plywood offers plywood and veneer products, mainly for construction, vehicle flooring and LNG shipbuilding, as well as other manufacturing industries. Production facilities are located in Finland, Estonia and Russia.



	2016	2015
Sales, EURm	444	439
Comparable EBITDA, EURm	80	78
% of sales	18.1	17.8
Depreciation, amortisation and impairment charges, EURm	-22	-23
Operating profit, EURm	58	53
% of sales	13.2	12.1
Items affecting comparability in operating profit, EURm <sup>1)</sup>	-	-2
Comparable EBIT, EURm	58	55
% of sales	13.2	12.5
Capital employed (average), EURm	259	263
Comparable ROCE, %	22.6	20.9
Plywood deliveries, 1,000 m <sup>3</sup>	764	740

<sup>1)</sup> In 2015, items affecting comparability of EUR 2 million relate to Lahti estate restructuring charges.

### 2016 compared with 2015

Comparable EBIT for UPM Plywood increased due to higher delivery volumes and lower costs, partly supported by favourable currency impact, more than offsetting the negative impact of slightly lower sales prices.

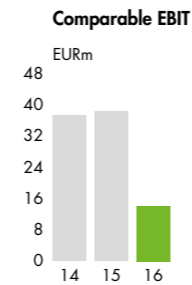
### Market environment

Market environment improved gradually during 2016 in Europe, and demand is estimated to have increased from last year. Impact of low-priced imports in the beginning of the year eased in Q2, and since then, demand has picked up particularly in birch plywood-related industrial applications.

Activity in the building and construction industry improved somewhat. Market prices decreased at the beginning of the year, but experienced slight increases during the second half of the year.

## Other operations

Other operations include wood sourcing and forestry, UPM Biocomposites and UPM Biochemicals business units and group services.



	2016	2015
Sales, EURm	285	406
Comparable EBITDA, EURm	-35	-16
Change in fair value of forest assets and wood harvested, EURm	59	331
Share of results of associates and joint ventures, EURm	3	1
Depreciation, amortisation and impairment charges, EURm	-13	-13
Operating profit, EURm	15	306
Items affecting comparability in operating profit, EURm <sup>1)</sup>	1	268
Comparable EBIT, EURm	14	38
Capital employed (average), EURm	1,541	1,483
Comparable ROCE, %	0.9	2.6

<sup>1)</sup> In 2016, items affecting comparability relate to restructuring charges. In 2015, items affecting comparability include a fair value increase of forest assets in Finland totalling EUR 265 million, due to adjusted long-term wood price estimates and a change in discount rate. In addition, capital gains of EUR 3 million from the sale of Tilhill Forestry Ltd shares, capital gains of EUR 3 million from the sale of other assets and EUR 3 million of restructuring charges were reported as items affecting comparability.

### 2016 compared with 2015

Comparable EBIT for Other operations decreased. The increase in the fair value of biological assets net of wood harvested, excluding items affecting comparability, was EUR 59 million (66 million). The increase in the fair value of biological assets (growing trees), excluding items affecting comparability, was EUR 113 million (112 million), including gains on forest sales. The cost of wood harvested from UPM forests was EUR 54 million (46 million).

In 2016, UPM sold a total of 63,113 (63,669) hectares of forests.

## Shares

UPM has one class of shares. Each share entitles the holder to one vote at the Annual General Meeting of UPM.

On December 31, 2016 the total number of UPM shares was 533,735,699. Through the issuance authorisation described below, the number of shares may increase to a maximum of 558,735,699. On December 31, 2016, UPM held 230,737 of its own shares, representing approximately 0.04% of the total number of UPM shares and voting rights. There are no specific terms related to the shares except for the redemption clause described below.

In 2016, UPM shares worth EUR 6,749 million (EUR 7,469 million) in total were traded on the NASDAQ Helsinki. This is estimated to represent about two thirds of all trading volumes in UPM shares. The highest listing was EUR 23.41 in December and the lowest EUR 13.71 in February.

The company's ADSs are traded on the US over-the-counter (OTC) market under a Level 1-sponsored American Depositary Receipt programme.

Information on the major shareholders, break-down by shareholders category and size as well as share related indicators are available in section » **Information on shares** in UPM Annual report 2016.

### Redemption clause

Under § 12 of UPM-Kymmene Corporation's Articles of Association, a shareholder who, alone or jointly with another shareholder owns 33 1/3 percent or 50 percent or more of all the company's shares or their associated voting rights shall, at the request of other shareholders, be liable to redeem their shares and any securities that, under the Companies Act, carry the right to such shares, in the manner prescribed in § 12.

A resolution of a general meeting of shareholders to amend or delete this redemption clause must be carried by shareholders representing not less than three-quarters of the votes cast and shares represented at the meeting.

### Authorisations held by the Board of Directors

The Annual General Meeting held on 7 April 2016 authorised the Board of Directors to decide on the repurchase of a maximum of 50,000,000 of the Company's own shares. The authorisation will be valid for 18 months from the date of the AGM resolution.

The Board of Directors was authorised to decide on the issuance of new shares, transfer of treasury shares and issuance of special rights entitling to shares in proportion to the shareholders' existing holdings in the Company, or in a directed share issue, deviating from the shareholders' pre-emptive subscription rights. The Board of Directors may also decide on a share issue without payment to the Company itself. The aggregate maximum number of new shares that may be issued and treasury shares that may be transferred is 25,000,000, including also the number of shares that can be received on the basis of the special rights. The authorisation will be valid for three years from the date of the AGM resolution.

Aside from the above, the Board of Directors has no current authorisation to issue shares, convertible bonds or share options.

## Board of Directors and the Group Executive Team

At the Annual General Meeting held on 7 April 2016, the number of members of the Board of Directors was confirmed as ten, and all former directors, i.e. Berndt Brunow, Henrik Ehrnrooth, Piia-Noora Kauppi, Wendy E. Lane, Jussi Pesonen, Ari Puheloinen, Veli-Matti Reinikkala, Suzanne Thoma, Kim Wahl and Björn Wahlroos, were re-elected to the Board for a term continuing until the end of the next AGM.

At the meeting of the Board of Directors held following the AGM, Björn Wahlroos was re-elected as Chairman, and Berndt Brunow as Deputy Chairman of the Board of Directors. In addition, the Board of Directors elected the chairmen and other members to the Board committees from among its members. No changes took place in the committee compositions.

### Shares held by the Board of Directors and the Group Executive Team

At the end of the year, the members of the Board of Directors including the President and CEO owned a total of 987,427 (882,101) UPM-Kymmene Corporation shares. These represent 0.19% (0.16%) of the shares and 0.19% (0.16%) of the voting rights. At the end of the year, President and CEO Jussi Pesonen owned 304,064 shares. At the end of the year, the other members of the Group Executive Team owned a total of 360,170 shares.

» **Refer Note 3.2** Key management personnel, of consolidated financial statements 2016 for further information on remuneration and shares held by the members of the Board, the President and CEO and the members of Group Executive Team.

## Litigation

» **Refer Note 9.2** Litigation, of consolidated financial statements 2016 for information on legal proceedings.

## Risks

### Risk management

UPM regards risk management as a systematic and proactive means to analyse and manage the opportunities and threats related to its business operations. This includes also risks avoided by careful planning and evaluation of future projects and business environment.

UPM seeks to transfer insurable risks through insurance arrangements if the risks exceed the defined tolerance. The insurance

cover is always subject to the applicable insurance conditions.

The main risk factors that can materially affect the company's business and financial results are set out below. They have been classified as strategic risks, operational risks, financial risks and hazard risks. Risks may also arise from legal proceedings incidental to UPM's operations.

### Strategic risks

TYPE OF RISK	RISK DESCRIPTION
Competition, markets and customers	<p>The energy, pulp, timber, paper, label, plywood and biofuels markets are cyclical and highly competitive. In all of these markets the price level is determined as a combination of demand and supply, and shocks to either demand (decrease/ increase in end-use demand, change in customer preferences etc.) or supply (e.g. new production capacity entering the market or old capacity being closed) may impact both the volume and the price level for UPM. Also competitor behaviour influences the market price development.</p> <p>UPM performance is also impacted by the performance of substitute or alternative products. Most notably, the demand in graphical papers in the mature markets is forecasted to continue to decline, due to the shift away from print media to electronic media. Similarly, several raw materials used by UPM have competing end uses.</p> <p>Consumers' environmental awareness has also increased, and this may have either a positive or negative impact on the consumption of UPM's products, depending on the product area. UPM sells a proportion of its products to several major customers. The largest customer in terms of sales represented approximately 3% of UPM's sales in 2016, and the ten largest customers represented approximately 16% of such sales.</p>
M&A and changes in the business portfolio	<p>UPM's strategic direction is to increase the share of growing businesses with positive long-term fundamentals. This may require acquisitions of new businesses or divestments of existing businesses. Participation in M&amp;A involves risks such as successful implementation of a divestment and the ability to integrate and manage acquired operations and personnel successfully, as well as to achieve the economic targets set for an acquisition/divestment.</p>
Regulation	<p>UPM is exposed to a wide range of laws and regulations. The performance of UPM businesses, for example the biofuels business, the paper businesses and the energy business, are to a high degree dependent on the current regulatory framework, and changes to regulation, direct and indirect taxation or subsidies would have a direct impact on the performance of UPM. In addition, regulation may structurally restrict or exacerbate UPM's ability to compete for raw material.</p> <p>UPM's environment related processes and management are based on full compliance with such laws and regulations, and environmental investments, audits and measurements are carried out on a continuous basis. UPM is currently not involved in any major proceeding concerning environmental matters, but the risk of substantial environmental costs and liabilities is inherent in industrial operations.</p>
Political and economical risks	<p>UPM has major manufacturing locations in Finland, Germany, the UK, France and the US. In these countries, the slow development of the individual economies and/or of Europe as a whole influences adversely UPM's performance. Furthermore, policies (on European and/or national level) that hamper economic growth or lower the competitiveness of UPM (for example through adverse regulation or increase in direct or indirect taxation) may have an adverse impact on UPM's performance. In the developed countries, the unpredictability of regulation may lead to an increasing uncertainty and risk level when investing in or operating in these countries.</p> <p>UPM has manufacturing operations in a number of emerging market countries, such as China, Uruguay and Russia. In the emerging market countries, the lack of transparency and predictability of the political, economic and legal systems may lead to an increasing uncertainty and risk level when investing in, or operating in these countries. These uncertainties may materialize as unfavourable taxation treatment, trade restrictions, inflation, currency fluctuations and nationalisation of assets.</p>

### Operational risks

TYPE OF RISK	RISK DESCRIPTION
Earnings uncertainty	The main short-term uncertainties in UPM's earnings relate to sales prices and delivery volumes of the group's products, as well as to changes in the main input cost items and exchange rates. Most of these items are dependent on general economic developments.
Availability and price of major inputs	In 2016, third-party suppliers accounted for approximately 83% of UPM's wood requirements. Other production inputs, such as chemicals, fillers and recovered paper, are obtained from third-party suppliers. Disruptions in the supply of key inputs would impact upon manufacturing operations, for example, by interrupting or resulting in the downscaling of production or a change in the product mix. They could also cause price increases for critical inputs or shifts in the availability and price of wood. It is also uncertain how the EU energy policies may impact upon the availability and costs of fibre and energy.
Project execution	Investment projects in UPM businesses such as energy, pulp, paper or biofuels are often large and take one or more years to complete. UPM has experience in such projects in various businesses and locations around the world, and applies vigorous planning, project management and follow-up processes. Participation in large projects involves risks such as cost overruns or delays, as well as achievement of the economic targets set for the investment.
Partnerships	UPM currently works together with many partners without control over strategic direction and operational output. The highly competitive market situation and, for example, new developments in biofuels or bioenergy are likely to increase the importance of partnerships in the search for higher efficiency or new products and businesses. Partnerships, however, may create risks to the profitability, for example, through changes occurring within the partner entity or changes in how the partnership operates.
Ability to recruit and retain skilled employees	To meet the challenges of sustaining growth and improving the effectiveness of operations, a skilled workforce is necessary. UPM is continuously evaluating its recruitment, compensation and career development policies and taking measures to attract and retain skilled personnel, thereby seeking to avoid shortages of appropriately skilled personnel in the future.
Availability and security of information systems	UPM business operations depend on the availability of supporting information system and network services. Unplanned interruptions in critical information services can potentially cause a major interruption of UPM business areas. UPM has implemented numerous technical, physical and process improvements to mitigate the availability and security risks and to reduce the service interruption related recovery time to acceptable level.
Risks related to non-compliance	The UPM Code of Conduct sets the standards of responsible behaviour towards UPM stakeholders. They apply to every employee. The code covers topics relating to legal compliance and disclosure, conflicts of interest, gifts and bribes, HR practices, human rights questions and environmental matters. UPM's environmental performance and social responsibility play a significant role in UPM's ability to operate and influence the long-term success of its businesses. Negligence or breach of Code of Conduct may lead to legal processes or serious reputational damages impacting the value of the company. UPM ensures that employees are aware of the Code by regular trainings, the company maintains a report misconduct channel and carries out regular audits in its supply chain.

### Financial risks

Financial risks are described in consolidated financial statements 2016.

TYPE OF RISK	CONSOLIDATED FINANCIAL STATEMENT NOTE
Credit risk	4.6 Working capital
Liquidity and refinancing risk	5.1 Capital management
Interest rate risk	6.1 Financial risk management
Foreign exchange risk	6.1 Financial risk management
Electricity price risk	6.1 Financial risk management

### Hazard risks

UPM operates a significant number of manufacturing facilities globally, mostly UPM-owned, and is also the largest private owner of forestland in Finland. UPM is exposed to risks in areas such as occupational health and safety, environment, fire, natural events and site security. These risks are managed through established management procedures and loss prevention programmes. UPM's insurance programme also provides coverage for insurable hazard risks, subject to terms and conditions.

## Research and development

### Focus on circular economy

Innovations and R&D are at the forefront of creating and developing new products that can be used to replace non-renewable materials with renewable, recyclable and resource efficient low-carbon alternatives.

The aim of UPM's R&D programmes is to create new technologies and products, provide support to and ensure the competitiveness of its businesses.

By co-operating with selected value chain partners, UPM aims to increase its speed, agility and effectiveness.

In 2016, UPM spent EUR 46 million (63 million) on research and development work equating to 2.7% (5.3%) of UPM's operating cash flow. The focus was on new technologies and developing businesses. On top of the direct R&D expenditure of approximately EUR 40 million (37 million), the figures include negative operating cash flow and capital expenditure in developing businesses.

UPM has a global network of research centres to support both new and existing businesses and their development goals.

### Research projects

Circular economy is an integral part of UPM's business. Resource efficiency is at the core of our Biofore strategy. Our product stewardship and eco-design approach covers the entire value chain from the design stage to end products and their reuse.

UPM's side stream efficiency research (SEFF) is looking for solutions to better utilise the side streams of integrated pulp and paper mills; sludge, ash, green liquor dregs, various rejects and waste heat. The aim is to reduce costs and increase the value of side streams by finding new business opportunities with partners.

Fertiliser development and nutrient recirculation is one of the possible circular economy solutions. UPM established a joint project with fertiliser and crop nutrition expert Yara Suomi Oy to develop nutrient recycling. The project concentrates on the possibilities for the agricultural reuse of nutrients retrieved from the sludge originating from the pulp and paper mill's effluent treatment plants and the ash from the incineration process.

Other studies relate among others to ash product development for construction applications and new ways to reuse green liquor dregs. The results are also used in UPM's Zero solid waste programme. The initiative develops smart and sustainable solutions, in which excess materials circulate and generate value.

UPM's fibre ecosystem project aims to study new fibre processes for enhanced product properties. The new product possibilities address global megatrends and sustainability demands. The research is done in co-operation with customers, partners and research organisations along various value chains.

### Wide-scale collaboration

UPM is one of the founding members of the industrial consortium, part of the European Joint Undertaking on Bio-based Industries (BBI). This Public Private Partnership (PPP) aims to trigger investments and create a competitive market for bio-based products and materials. For UPM, the PPP is an important funding element for speeding up the implementation of future investments.

UPM is a shareholder in the Finnish CLIC Innovation Oy, which focuses on bioeconomy and cleantech research. The cluster's research programmes focus on bioeconomy as well as energy and environmental research, thus supporting UPM's internal R&D activities.

In 2016, UPM received approximately EUR 1.0 million (1.4 million) from Tekes (the Finnish Funding Agency for Innovation) for its research projects. These projects were carried out in co-operation with research institutes, universities and other companies.

UPM works together with a wide network of universities, research institutes, technology suppliers and start-ups to develop new solutions and get to the market faster, especially in new businesses.

UPM actively protects inventions and brands with intellectual property rights. UPM manages and uses its patents, trademarks and other intellectual property rights throughout the world. Protected innovations and high level risk management is an integral part of the business model throughout UPM. UPM is also actively seeking partners and licensing opportunities to develop new technologies and solutions for its customers.

### Biocomposites create sustainable value through the fusion of fibres and polymers

UPM Biocomposites develops, manufactures and sells high quality composite products for a wide range of consumer and industrial applications.

UPM ProFi Deck range is one of the leading composite decking brands in Europe. Through patented recycling technology, UPM Biocomposites recovers the cellulose fibres and polymers found in label material waste and gives them a second life. Each square metre of UPM ProFi Deck contains 10 kg of label waste.

UPM Formi is the engineered range of pure cellulose and virgin polymer compounds suitable for various applications from furniture to consumer electronics. Its carbon footprint is up to 50% lower compared to traditional plastics.

### Biochemicals offer a sustainable alternative to fossil-based solutions

UPM Biochemicals offers and develops innovative, sustainable and competitive wood-based biochemicals. It is currently focusing on four product categories: chemical building blocks, lignin products, biofibrils and biomedical products.

For example, bio-based chemical building blocks can be used to replace oil-based chemicals in plastic production. Wood-based lignin can for instance be used to manufacture bio-based resins to replace fossil-based resins.

Biofibrils are cellulose-based micro and nanofibril products that can be used for shaping and reinforcing different materials. They can also be used in new biomedical applications. GrowDex® is a proprietary hydrogel for cell culturing in medical research and other applications.

UPM Biochemicals has already commercialised the first lignin applications and biomedical products. It is actively developing and testing industrial applications with its partners in order to create large scale industrial concepts.

## R&D's role in different businesses

BUSINESS AREA	DESCRIPTION
<b>UPM Biorefining</b> UPM Pulp	In 2016, the focus was on improving the environmental performance and operational efficiency of the mills as well as solid waste reduction through several internal and external joint research projects. In Fray Bentos, Uruguay, the emphasis was in achieving a significant reduction in phosphorous emissions through a new treatment system. In eucalyptus plantation operations, development work concentrated on the tree breeding program and development of new eucalyptus clones. In Finland, the focus was on developing wood sourcing and wood handling activities to reduce wood consumption at the mills. UPM Pulp's Technical Customer Service Support continued joint development activities and enhanced cooperation with customers, mainly in Europe and China.
<b>UPM Biofuels</b>	UPM BioVerno, the renewable diesel, was successfully distributed to the Finnish market throughout the year. The United Nations chose UPM Biofuels among great examples of action in its Sustainable Development Goals for goal number 13, Climate Change. UPM Biofuels also won The Pulp and Paper Industry's Bio Strategy Award 2016.  Several new engine and fleet tests in off-road, heavy duty and marine use were conducted: <ul style="list-style-type: none"> <li>Marine use: UPM BioVerno performed well in marine fleet engine tests and was found to represent a high-quality fossil diesel substitute fuel. The non-existing sulphur and ash content had a positive influence on SOx and PM emissions. CO<sub>2</sub> emissions were reduced up to 80 %. The tests were conducted by Dutch GoodFuels Marine and Boskalis during the nature restoration project Marker Wadden.</li> <li>Urban buses: The laboratory tests and yearlong field tests were completed. UPM BioVerno produced clearly lower emissions than fossil diesel in Euro III Class buses. The field tests were conducted in the Helsinki region bus traffic with four identical Volvo Euro VI Class buses with efficient engines and low emissions. UPM BioVerno functioned like the best diesel fuels in all blending ratios of 20, 50 and 100 %, and the fuel consumption was identical. No fuel-related incidents occurred during the 400,000 kilometres travelled.</li> </ul> The International Sustainability and Carbon Certification Scheme certification (ISCC PLUS) was extended to cover all UPM Biofuels' output streams from the Lappeenranta biorefinery. Now the wood-based fuels and side-products can be utilised as certified feedstock e.g. in bioplastics production. In August 2016, a separate Biofuels Development Team was established to extend UPM's biofuel production to new feedstock, processes, and business models.
<b>UPM Energy</b>	The focus was on improving the efficiency and cost competitiveness of hydro, nuclear and biomass based energy production assets. To reach its target, Energy R&D participated in several research programs. These programs improve the design and operations of UPM's energy production systems in the transforming energy markets.
<b>UPM Rafflatac</b>	In standard paper products, the focus was on the re-engineering efforts for greater cost efficiency and product quality. Standard film development focused on thinner materials, improved production processes for upgraded quality and a new range of conformable products. In the special business area, the main emphasis was on developing high added-value products for selected end-use segments and tailored solutions for specific customer needs.
<b>UPM Specialty Papers</b>	R&D supports businesses globally and backs up operations in China and Finland through development activities in Changshu and Lappeenranta research centres. The focus areas were in product development and operational efficiency. The "More with Biofore 2.0" R&D programme was started at the end of the year to further improve top-notch energy efficiency and the environmental performance of Changshu operations.
<b>UPM Paper ENA</b>	Key focus areas were: <ul style="list-style-type: none"> <li>developing competitive products and product portfolios,</li> <li>providing top expertise in customer support,</li> <li>developing and implementing novel technologies and best practices for variable cost savings and operational efficiency improvements.</li> </ul> R&D also supported the development of novel solutions for paper mills' waste and side streams management.
<b>UPM Plywood</b>	Key focus areas were: <ul style="list-style-type: none"> <li>providing superior technical expertise and support for customers,</li> <li>creating competitive products within selected end-use areas,</li> <li>supporting the commercialisation of previously developed products and applications. WISA® Bonded Floor Solution was showcased in IAA exhibition as a central element of German trailer manufacturer Kögel's commercial light trailer solution. The low weight of the vehicle reduces fuel consumption + CO<sub>2</sub> emissions and enables higher payload in transportation.</li> </ul> New products were developed for various construction applications to complement the current portfolio.

## Responsibility

### Responsibility is good business

Corporate responsibility is an integral part of all our operations and is seen as a source of competitive advantage. UPM is strongly committed to continuous improvement in economic, social and environmental performance. UPM promotes responsible practices throughout the value chain and is active in finding sustainable solutions in co-operation with its customers, suppliers and partners.

In 2016, the main focus of UPM's responsibility activities was on the internal Code of Conduct training and on extending its effects to UPM's suppliers and third party intermediaries. The safety of employees and contractors remained an important focus area. UPM took part in the UN Global Compact LEAD forum as the first representative of the forest industry and also as the first Finnish participant.

### Environmental performance

In 2016, UPM's environmental investments totalled EUR 22 million (28 million). The largest being the investment to Schongau power plant retrofit to achieve lower air emissions. UPM's environmental costs, which were mainly attributable to effluent treatment and waste management, totalled EUR 120 million (129 million), including depreciation.

No major environmental incidents occurred in 2016. However, several minor temporary deviations from permit limits did arise. These deviations were reported to the relevant authorities immediately, and corrective and preventive measures were taken. These measures are part of UPM's internal Clean Run campaign that aims to improve the company's environmental performance further, sharing best practices and promoting and maintaining environmental awareness.

The majority of UPM's production sites, as well as its forestry operations, are covered by environmental, quality and health and safety systems, which are certified in accordance with the ISO 9001, ISO 14001 and OHSAS 18001 standards respectively. In addition, several sites have an ISO 22000 food safety management system or an energy management system according to ISO 50001 or the Finnish ETJ+ system. UPM has certified all its European pulp and paper mills, the UPM Fray Bentos pulp mill in Uruguay and UPM Changshu paper mill in China in accordance with the voluntary EU Eco-Management and Audit Scheme (EMAS).

In 2016, UPM Pulp developed a joint integrated management system for its four pulp mills. A similar project has started for UPM's paper mills in Finland.

IMPACT	MANAGEMENT
Prioritising product stewardship	UPM's products are made from renewable, biodegradable and recyclable raw materials. Product stewardship covers the entire lifecycle for all UPM products from the development phase to the end-use and beyond. Ecodesign and product safety measures ensure that impacts on products and the environment are considered and minimised. UPM provides product declarations to grant customers easy access to relevant information. UPM is the largest producer of EU ecolabelled newsprint, graphic and office papers.
Reducing waste is part of circular economy	Today, approximately 89% of all UPM's production waste is recovered and recycled. UPM has developed innovative ways to reduce its own waste and to recycle waste or residues in new products such as UPM BioVerno, UPM's renewable diesel and UPM ProFi composite which utilises partly waste from the production of self-adhesive label materials. UPM is also the world's largest user of recovered paper for the production of graphic papers, consuming 2.8 million tonnes of paper for recycling in 2016. The total amount of solid waste sent to landfill has slightly increased with 3% compared to the previous year.
Sustainable forestry	All of UPM's own forests and eucalyptus plantations are certified according to the FSC and/or PEFC certification schemes. All of UPM's wood supplies are covered by third-party-verified chains of custody. 84% (84%) of all wood used by UPM is sourced from certified forests. The aim of UPM's global biodiversity programme is to maintain biodiversity in forests, to promote best practices in sustainable forestry and to emphasize the role of ecosystem services. In 2016, the CDP Forest Program listed UPM as one of the global leaders on the 2016 Forest A List for timber and timber-based products.
Climate actions and energy efficiency	Since 1990, specific direct CO <sub>2</sub> (fossil carbon dioxide) emissions per tonne of paper have been reduced by approximately 23%. UPM has a wide range of energy sources and it maximises the use of carbon-neutral energy. Biomass-based fuels make up 85% of the fuels used by UPM in Finland and 69% of those used worldwide. UPM is the second largest generator of biomass-based electricity in Europe. If UPM would need to buy certificates to cover its whole fossil CO <sub>2</sub> emissions, and the price of CO <sub>2</sub> certificates would rise by EUR 5 per tonne, it would mean additional costs of approximately EUR 20 million annually. As the use of weather-dependent energy sources increases, the need for balancing power in energy systems will also grow. UPM is investing in hydropower, the most effective and sustainable method of producing balancing power. In 2016, the new unit of the Harjavalta hydropower plant was completed. UPM strives to continuously improve its energy efficiency across all its operations. During the last 20 years, the energy efficiency of production has significantly improved due to energy audits, innovations and internal campaigns.
Water plays an increasingly important role	All of UPM's pulp and paper mills are required to have both a mechanical and a biological wastewater treatment. In order to ensure the best possible treatment result and share best practice, UPM's wastewater treatment facility team has continued its work. The results have been good and the number of incidents has decreased further in 2016. UPM has reduced wastewater volumes per tonne of paper by 11% and per tonne of chemical pulp by 22% over the last ten years. The COD load has decreased by 23% per tonne of paper, and by 40% per tonne of pulp, over the last ten years. If the price for raw water would increase by 0.01 Euro per m <sup>3</sup> , it would mean additional water costs of approximately EUR 5 million annually. UPM's efforts for responsible water use were acknowledged by the CDP Water Program which has rated UPM with A-, a leadership position in the ranking.

## Board of Director's proposal for the distribution of profits

The Board of Directors proposes to the Annual General Meeting of UPM-Kymmene Corporation to be held on 29 March 2017 that a dividend of EUR 0.95 per share be paid based on the balance sheet to be adopted for the financial year ending 31 December 2016 and that the remaining portion of the distributable funds be retained in the Company's unrestricted shareholders' equity.

The dividend will be paid to a shareholder who is registered in the Company's shareholders' register held by Euroclear Finland Ltd on the dividend record date of 31 March 2017. The Board of Directors proposes that the dividend be paid on 12 April 2017.

On the date of the dividend proposal, 31 January 2017, the Company's registered number of shares is 533,735,699. The aforementioned number of shares includes 230,737 treasury shares which are not entitled to dividend. As a result, the proposed dividend would total EUR 506.8 million.

On 31 December 2016, the distributable funds of the parent company were EUR 3,387,589,976.70 including EUR 254,985,094.81 profit for the period. No material changes have taken place in respect of the Company's financial position after the balance sheet date. In the opinion of the Board of Directors, the proposed distribution of profits does not risk the solvency of the Company.

Signatures of the annual accounts and the report of the Board of Directors for the year 2016

Helsinki, 31 January 2017

Björn Wahlroos  
Chairman

Berndt Brunow

Henrik Ehrnrooth

Piia-Noora Kauppi

Wendy E. Lane

Jussi Pesonen  
President and CEO

Ari Puheloinen

Veli-Matti Reinikkala

Suzanne Thoma

Kim Wahl

## Corporate Governance Statement

UPM presents the Corporate Governance Statement as a separate report which is available on the UPM website: [www.upm.com](http://www.upm.com).

◀ CONTENTS ▶ ACCOUNTS

# Consolidated financial statements, IFRS

## Consolidated income statement

EURm	NOTE	2016	2015
<b>Sales</b>	2.1, 2.2	9,812	10,138
Other operating income	2.3	140	13
Costs and expenses	2.3	-8,365	-8,840
Change in fair value of forest assets and wood harvested	4.2	88	352
Share of results of associates and joint ventures		5	3
Depreciation, amortisation and impairment charges	2.3, 4.1, 4.4	-545	-524
<b>Operating profit</b>		1,135	1,142
Gains on sale of energy shareholdings, net	4.3	1	-
Exchange rate and fair value gains and losses	5.4	-7	1
Interest and other finance costs	5.4	-49	-68
<b>Profit before tax</b>		1,080	1,075
Income taxes	7.1	-200	-159
<b>Profit for the period</b>		880	916
<b>Attributable to:</b>			
Owners of the parent company		879	916
Non-controlling interests		1	-
		880	916
<b>Earnings per share for profit attributable to owners of the parent company</b>			
Basic earnings per share, EUR	2.4	1.65	1.72
Diluted earnings per share, EUR	2.4	1.65	1.72

## Consolidated statement of comprehensive income

EURm	NOTE	2016	2015
<b>Profit for the period</b>		880	916
<b>Other comprehensive income for the period, net of tax</b>			
<b>Items that will not be reclassified to the income statement:</b>			
Actuarial gains and losses on defined benefit plans		-97	113
<b>Items that may be reclassified to the income statement:</b>			
Translation differences		-14	221
Net investment hedge		-1	-28
Cash flow hedges		73	24
Gains and losses on energy shareholdings		-144	-405
		-87	-188
<b>Other comprehensive income for the period, net of tax</b>	7.2	-184	-75
<b>Total comprehensive income for the period</b>		696	841
<b>Attributable to:</b>			
Owners of the parent company		695	841
Non-controlling interests		1	-
		696	841

The notes are integral part of these consolidated financial statements

## Consolidated balance sheet

EURm	NOTE	2016	2015
<b>ASSETS</b>			
Goodwill	4.4	245	241
Other intangible assets	4.4	301	329
Property, plant and equipment	4.1	4,657	4,895
Forest assets	4.2	1,734	1,738
Energy shareholdings	4.3	1,932	2,085
Other non-current financial assets	5.3	255	332
Deferred tax assets	7.2	446	466
Net retirement benefit assets	3.4	71	93
Investments in associates and joint ventures		29	28
Other non-current assets		47	52
<b>Non-current assets</b>		9,715	10,259
Inventories	4.6	1,346	1,376
Trade and other receivables	4.6, 5.3	1,726	1,743
Other current financial assets	5.3	109	133
Income tax receivables		14	56
Cash and cash equivalents	5.1	992	626
<b>Current assets</b>		4,187	3,934
<b>Assets classified as held for sale</b>		8	-
<b>Assets</b>		13,911	14,193

EURm	NOTE	2016	2015
<b>EQUITY AND LIABILITIES</b>			
Share capital	5.5	890	890
Treasury shares		-2	-2
Translation reserve		433	449
Other reserves	5.5	1,416	1,486
Reserve for invested non-restricted equity	5.5	1,273	1,273
Retained earnings		4,225	3,846
<b>Equity attributable to owners of the parent company</b>		8,234	7,942
<b>Non-controlling interests</b>		3	2
<b>Equity</b>		8,237	7,944
Deferred tax liabilities	7.2	457	456
Net retirement benefit liabilities	3.4	817	747
Provisions	4.5	145	154
Non-current debt	5.2, 5.3	1,835	2,797
Other non-current financial liabilities	5.3	110	174
<b>Non-current liabilities</b>		3,364	4,328
Current debt	5.2, 5.3	584	269
Trade and other payables	4.6, 5.3	1,594	1,463
Other current financial liabilities	5.3	116	156
Income tax payables		16	33
<b>Current liabilities</b>		2,309	1,921
<b>Liabilities</b>		5,673	6,249
<b>Equity and liabilities</b>		13,911	14,193

The notes are integral part of these consolidated financial statements

## Consolidated statement of changes in equity

EURm	SHARE CAPITAL	TREASURY SHARES	TRANSLATION RESERVE	OTHER RESERVES	RESERVE FOR INVESTED NON-RESTRICTED EQUITY	RETAINED EARNINGS	EQUITY ATTRIBUTABLE TO OWNERS OF THE PARENT COMPANY	NON-CONTROLLING INTERESTS	TOTAL EQUITY
<b>Value, at 1 January 2016</b>	890	-2	449	1,486	1,273	3,846	7,942	2	7,944
Profit for the period	-	-	-	-	-	879	879	1	880
Translation differences	-	-	-14	-	-	-	-14	-	-14
Cash flow hedges – reclassified to income statement, net of tax	-	-	-	55	-	-	55	-	55
Cash flow hedges – changes in fair value, net of tax	-	-	-	18	-	-	18	-	18
Net investment hedge, net of tax	-	-	-1	-	-	-	-1	-	-1
Energy shareholdings – changes in fair value, net of tax	-	-	-	-144	-	-	-144	-	-144
Actuarial gains and losses on defined benefit plans, net of tax	-	-	-	-	-	-97	-97	-	-97
<b>Total comprehensive income for the period</b>	-	-	-16	-72	-	782	695	1	696
Share-based payments, net of tax	-	-	-	1	-	-3	-2	-	-2
Dividend distribution	-	-	-	-	-	-400	-400	-	-400
<b>Total transactions with owners for the period</b>	-	-	-	1	-	-403	-402	-	-402
<b>Total equity at 31 December 2016</b>	890	-2	433	1,416	1,273	4,225	8,234	3	8,237
<b>Value, at 1 January 2015</b>	890	-2	256	1,867	1,273	3,194	7,478	2	7,480
Profit for the period	-	-	-	-	-	916	916	-	916
Translation differences	-	-	221	-	-	-	221	-	221
Cash flow hedges – reclassified to income statement, net of tax	-	-	-	92	-	-	92	-	92
Cash flow hedges – changes in fair value, net of tax	-	-	-	-68	-	-	-68	-	-68
Net investment hedge, net of tax	-	-	-28	-	-	-	-28	-	-28
Energy shareholdings – changes in fair value, net of tax	-	-	-	-405	-	-	-405	-	-405
Actuarial gains and losses on defined benefit plans, net of tax	-	-	-	-	-	113	113	-	113
<b>Total comprehensive income for the period</b>	-	-	193	-381	-	1,029	841	-	841
Share-based payments, net of tax	-	-	-	-	-	-4	-4	-	-4
Dividend distribution	-	-	-	-	-	-373	-373	-	-373
<b>Total transactions with owners for the period</b>	-	-	-	-	-	-377	-377	-	-377
<b>Total equity at 31 December 2015</b>	890	-2	449	1,486	1,273	3,846	7,942	2	7,944

» Refer Note 5.5 Share capital and reserves, for further information.

## Consolidated cash flow statement

EURm	2016	2015
<b>Cash flows from operating activities</b>		
Profit for the period	880	916
Adjustments <sup>1)</sup>	778	449
Interest received	6	6
Interest paid	-40	-22
Dividends received	4	1
Other financial items, net	8	-17
Income taxes paid	-145	-140
Change in working capital <sup>2)</sup>	195	-8
<b>Operating cash flow</b>	<b>1,686</b>	<b>1,185</b>
<b>Cash flows from investing activities</b>		
Capital expenditure	-351	-432
Acquisition of shares in associates and joint ventures	-	-1
Acquisition of energy shareholdings	-	-33
Proceeds from sale of property, plant and equipment and intangible assets	93	26
Proceeds from disposal of subsidiaries	-	8
Proceeds from disposal of energy shareholdings	6	35
Net cash flows from net investment hedges	-8	-43
Change in other non-current assets	-2	5
<b>Investing cash flow</b>	<b>-262</b>	<b>-435</b>
<b>Cash flows from financing activities</b>		
Proceeds from non-current debt	1	22
Payments of non-current debt	-540	-519
Change in current liabilities	-77	22
Net cash flows from derivatives	-22	43
Dividends paid	-400	-373
Other financing cash flow	-19	-20
<b>Financing cash flow</b>	<b>-1,057</b>	<b>-825</b>
<b>Change in cash and cash equivalents</b>	<b>367</b>	<b>-75</b>
Cash and cash equivalents at beginning of period	626	700
Exchange rate effect on cash and cash equivalents	-1	1
Change in cash and cash equivalents	367	-75
<b>Cash and cash equivalents at end of period</b>	<b>992</b>	<b>626</b>

<sup>1)</sup> Adjustments

EURm	2016	2015
Change in fair value of forest assets and wood harvested	-88	-352
Share of results of associates and joint ventures	-5	-3
Depreciation, amortisation and impairment charges	545	524
Capital gains and losses on sale of non-current assets	-55	-18
Financial income and expenses	56	67
Income taxes	200	159
Utilised provisions	-47	-68
Non-cash changes in provisions	44	6
Other adjustments	128	134
<b>Total</b>	<b>778</b>	<b>449</b>

<sup>2)</sup> Change in working capital

EURm	2016	2015
Inventories	41	15
Current receivables	22	-30
Current liabilities	132	7
<b>Total</b>	<b>195</b>	<b>-8</b>

# Notes to the consolidated financial statements

The notes to the consolidated financial statements are grouped into sections based on their nature. The notes contain the relevant financial information as well as a description of accounting policy and key estimates and judgements applied for the topics of the individual notes. All amounts are shown in millions of euros unless otherwise stated.



Items marked with this symbol describe the accounting principle applied by UPM to the specific financial statement area.



Items marked with this symbol indicate that the accounting area involves estimates and judgement which are described separately.



Risks related disclosures, whether they are financial, actuarial, credit or counterparty in nature, can be found in sections marked with this symbol.

## 1. Basis for reporting

### 1.1 Corporate information

UPM-Kymmene Corporation ("the parent company" or "the company") together with its consolidated subsidiaries ("UPM" or "thegroup") is a global forest industry group. UPM large product range covers pulp, graphic and specialty papers, self-adhesive labels, wood-based renewable diesel, electricity as well as plywood and timber products.

UPM-Kymmene Corporation is a Finnish limited liability company, domiciled in Helsinki in the Republic of Finland. The address of the company's registered office is Alvar Aallon katu 1, 00100 Helsinki, where a copy of the consolidated financial statements can be obtained.

The parent company's shares are publicly traded on the Nasdaq Helsinki Main Market.

These group consolidated financial statements were authorised for issue by the Board of Directors on 31 January 2017. According to the Finnish Companies Act, the General Meeting of Shareholders is entitled to decide on the adoption of the company's financial statements.

### 1.2 Basis of preparation

UPM's consolidated financial statements are prepared in accordance with International Financial Reporting Standards as adopted by the European Union (IFRS as adopted by the EU) and IFRIC Interpretations.

The consolidated financial statements have been prepared under the historical cost convention, except for forest assets, energy shareholdings and certain other financial assets and financial liabilities, defined benefit plan assets and obligations and share-based payment arrangements which are measured at fair value.

The consolidated financial statements are presented in millions of euros, which is the functional and presentation currency of the parent company. Items included in the financial statements of each group subsidiary are measured using the currency of the primary economic environment in which the subsidiary operates ("the functional currency").

The amounts within parentheses refer to the preceding year, 2015.

Figures presented in these financial statements are rounded and therefore the sum of individual figures might deviate from the presented total figure.



### Accounting policies

The accounting policies applied to the consolidated financial statements as a whole are described in this section, while the remaining accounting policies are described in the notes to which they relate as UPM aims to provide enhanced understanding of each financial statement area. Further, to provide a better understanding, the accounting choices made within the framework of the prevailing IFRS are described together with the policy.



### Key estimates and judgements

In the process of applying the group's accounting policies, management has made a number of judgements and applied estimates of future events that affect the reported amounts of assets and liabilities, the disclosure of contingent assets and liabilities at the date of the financial statements, and the reported amounts of revenues and expenses during the reporting periods. Although these estimates are based on management's best knowledge, actual results and timing may ultimately differ from previously made estimates.

Key estimates and judgement which are material to the reported results and financial position are presented in the following notes:

KEY ESTIMATES AND JUDGEMENTS	NOTE
Valuation of forest assets	4.2 Forest assets
Fair value determination of energy shareholdings	4.3 Energy shareholdings
Impairment of property, plant and equipment	4.1 Property, plant and equipment
Impairment of goodwill and other intangible assets	4.4 Goodwill and other intangible assets
Pension and other post-employment benefits	3.4 Retirement benefit obligations
Income taxes	7. Income tax
Environmental provisions	4.5 Provisions
Legal contingencies	9.2 Litigation



### Financial risks

UPM is exposed to a variety of financial risks as a result of its business activities including currency risk, interest rate risk, commodity price risk, credit risk, capital risk and liquidity risk. Risk management related to financial activities is carried out by UPM's central treasury

department, Treasury and Risk Management, under policies approved by the Board of Directors. Financial risks are described in the relevant notes as described below.

FINANCIAL RISK	NOTE
Credit risk	4.6 Working capital
Liquidity and refinancing risk	5.1 Capital management
Interest rate risk	6.1 Financial risk management
Foreign exchange risk	6.1 Financial risk management
Electricity price risk	6.1 Financial risk management
Financial counterparty risk	6.2 Derivatives and hedge accounting

## 1.3 Consolidation principles

### Subsidiaries

UPM's consolidated financial statements include the financial statements of the parent company, UPM-Kymmene Corporation, and subsidiaries controlled by UPM. All group entities apply consistently UPM's accounting policies. All intercompany transactions, receivables, liabilities and unrealised profits, as well as intragroup profit distributions, are eliminated. Unrealised losses are also eliminated unless the transaction provides evidence of an impairment of the transferred asset.

### Joint operations

UPM's share in joint operations is recognised in the consolidated balance sheet through recognition of the group's own assets and liabilities and revenues and expenses in the arrangement together with UPM's proportionate share in the joint assets, liabilities and joint income and expenses. The proportionate share of realised and unrealised gains and losses arising from intragroup transactions between UPM and its joint operations is eliminated.

### Associates and joint ventures

Associates are entities over which the group has significant influence. Joint ventures are joint arrangements where the group has joint control with other parties and the parties have rights to the arrangement's net assets.

Interests in associates and joint ventures are accounted for using the equity method of accounting and are initially recognised at cost.

Associates and joint ventures follow the group accounting policies for consolidation purpose.

### Non-controlling interests

The profit or loss attributable to owners of the parent company and non-controlling interests is presented on the face of the income statement. Non-controlling interests are presented in the consolidated balance sheet within equity, separately from equity attributable to owners of the parent company.

Transactions with non-controlling interests are treated as transactions with equity owners of the group. For purchases from non-controlling interests, the difference between consideration paid and the acquired share of the carrying value of the subsidiary's net assets is recorded in equity. Gains or losses of disposals to non-controlling interests are also recorded in equity, net of transaction costs.

## 1.4 Foreign currency translation

Foreign currency transactions are translated into the functional currency using the exchange rate prevailing at the date of transaction. Foreign exchange gains and losses resulting from the settlement of such transactions and from the translation at year-end exchange rates of monetary assets and liabilities denominated in foreign currencies are recognised in the income statement, except when recognised in other comprehensive income as qualifying cash flow hedges and qualifying net investment hedges.

UPM records foreign exchange differences relating to ordinary business operations within the appropriate line items above operating profit and those relating to financial items are presented separately as a net amount in finance costs.

Income and expenses of subsidiaries that have a functional currency different from euro are translated into euros at quarterly average exchange rates. Assets and liabilities of subsidiaries are translated at the closing rate at the balance sheet date. All resulting translation differences are recognised as a separate component in other comprehensive income. On consolidation, exchange differences arising from the translation of net investment in foreign operations and other currency instruments designated as hedges of such investments, are recognised in other comprehensive income. When a foreign entity is partially disposed of, sold or liquidated, translation differences accrued in equity are recognised in the income statement as part of the gain or loss on sale/liquidation.



## 1.5 New standards and amendments adopted

The following amendments to existing standards that are relevant to group have been adopted on January 2016:

STANDARD	NATURE OF CHANGE	IMPACT	DATE OF ADOPTION
Amendment to IAS 7 Statement of Cash Flows	The amendment requires to explain changes in liabilities arising from financing activities.	The group has early adopted the amendments made to IAS 7 and revised its net debt disclosures to comply with new requirements.	1 January 2016
Amendment to IAS 1 Presentation of financial statements	Part of IASB "Disclosure initiative" to improve presentation and disclosures in financial reports. The amendment provides prepares with more flexibility in presenting the information in financial reports.	The group has reviewed the content and structure of the financial statements in order to provide users with a clearer understanding of what drives financial performance. Immaterial disclosures that may undermine the usefulness of the financial reports have been removed and the notes to the financial statements have been reorganised into sections to assist users in understanding the group performance.	1 January 2016
Annual improvements to IFRSs 2012–2014 cycle	The amendments primarily remove inconsistencies, provide additional guidance and clarify wording of standards.	The adoption of improvements did not have any impact on the group's financial statements.	1 January 2016

## 2. Business performance

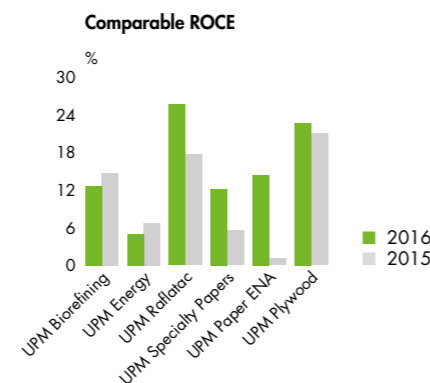
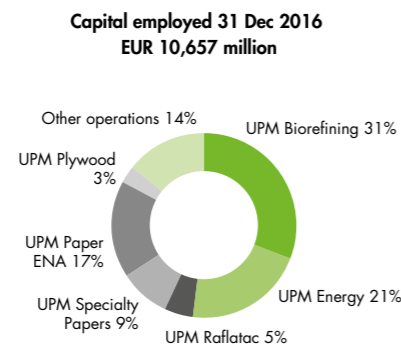
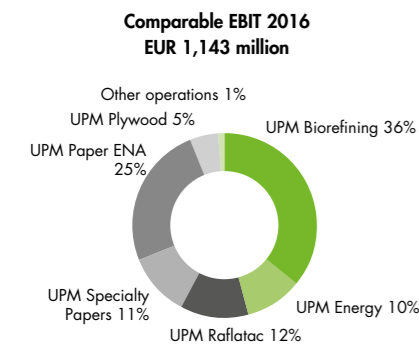
<b>Sales</b> EUR <b>9,812m</b> (EUR 10,138m)	<b>Comparable EBIT</b> EUR <b>1,143m</b> (EUR 916m)	<b>Comparable ROE</b> <b>10.9%</b> (9.5%)
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### 2.1 Business areas

UPM business portfolio consist of six competitive businesses with strong market positions. UPM reports financial information for the following business areas (segments): UPM Biorefining, UPM Energy, UPM Raflatac, UPM Specialty Papers, UPM Paper ENA, UPM Plywood and Other operations. UPM has production plants in 12 countries. The group's most important markets are Europe, North America and Asia.

### § Accounting policies

UPM business areas are reported consistently with the internal reporting provided to UPM's President and CEO who is responsible for allocating resources and assessing performance of the business areas. Internal reporting is prepared under the same basis as the consolidated accounts, except for a joint operation, Madison Paper Industries (MPI) which is consolidated as a subsidiary in the UPM Paper ENA reporting. Costs, revenues, assets and liabilities are allocated to business areas on a consistent basis. The sales transactions between business areas are based on market prices, and they are eliminated on consolidation.



BUSINESS AREA	DESCRIPTION AND PRODUCTS
<b>UPM Biorefining</b>	UPM Biorefining consists of UPM Pulp, UPM Biofuels and UPM Timber business units. UPM has three pulp mills in Finland, one pulp mill and plantation operations in Uruguay, four saw mills in Finland and one biorefinery in Finland. UPM Pulp serves the global market with a comprehensive assortment of sustainably produced eucalyptus, birch and softwood pulp grades for a variety of tissue, specialty paper, board, printing and writing paper and other applications. UPM Biofuels produces innovative, advanced biofuels for transport. UPM Timber manufactures certified sawn timber from Nordic pine and spruce to joinery, packaging, distribution and construction industries.
<b>UPM Energy</b>	UPM Energy produces low emission electricity to the Nordic market. UPM Energy is the second largest electricity producer in Finland. UPM Energy operations include electricity generation, and operations in both physical electricity and financial portfolio management. UPM Energy assets consists of hydro power assets in Finland and shareholdings in energy companies.
<b>UPM Raflatac</b>	UPM Raflatac is one of the world's leading producers of self-adhesive label materials. UPM Raflatac supplies high-quality film and paper label stock for consumer product and industrial labelling.
<b>UPM Paper ENA</b>	UPM Paper ENA (Europe & North America) is the world's leading producer of graphic papers.
<b>UPM Plywood</b>	UPM Plywood manufactures high-quality plywood and veneer products mainly for construction and transport industries and the new thermo-formable wood material for the form pressing industry. Production facilities are located in Finland, Estonia and Russia.
<b>UPM Specialty Papers</b> <sup>1)</sup>	UPM Specialty Papers produces fine papers to Asian markets and label and packaging materials to global markets. Responsibly produced high performance papers are manufactured in China and Finland.
<b>Other operations</b>	Other operations include wood sourcing and forestry, UPM Biocomposites, UPM Biochemicals business units and group services. Wood sourcing operations source wood raw material for sustainable and recyclable UPM products. UPM Biocomposites combines cellulose fibres and polymers into new high-performance products and materials. UPM Biochemicals wood-based biochemicals offer truly sustainable, competitive and high-quality solutions for various industries and applications.

<sup>1)</sup> In 2016, UPM Paper Asia business area has been renamed UPM Specialty Papers. The new name highlights the business area's strategic focus on specialty papers and global operations.

### Key performance indicators and financial targets

UPM targets top performance at the business area level in their respective markets. Financial target setting, follow up and allocation of resources in the group's performance management process is mainly based on the business areas' comparable EBIT and comparable ROCE.

UPM presents comparable performance measures to reflect the underlying business performance and to enhance comparability from period to period. However the comparable performance measures used by management should not be considered in isolation as a substitute for measures of performance in accordance with IFRS. Business area information including description of items affecting comparability is presented below.

**Business area information for the year ended 31 December 2016**

EURm, OR AS INDICATED	UPM BIOREFINING	UPM ENERGY	UPM RAFLATAC	UPM SPECIALTY PAPERS	UPM PAPER ENA	UPM PLYWOOD	OTHER OPERATIONS	ELIMINATIONS AND RECONCI- LIATIONS <sup>2)</sup>	GROUP
External sales	1,663	170	1,437	1,067	4,797	424	275	-22	9,812
Internal sales	542	187	-	206	21	20	11	-987	-
<b>Total sales</b>	<b>2,206</b>	<b>357</b>	<b>1,437</b>	<b>1,273</b>	<b>4,818</b>	<b>444</b>	<b>285</b>	<b>-1,009</b>	<b>9,812</b>
<b>Comparable EBIT</b>	<b>406</b>	<b>116</b>	<b>133</b>	<b>123</b>	<b>280</b>	<b>58</b>	<b>14</b>	<b>12</b>	<b>1,143</b>
Items affecting comparability in operating profit	-	-	-	-	-57	-	1	48	-7
<b>Operating profit</b>	<b>406</b>	<b>116</b>	<b>134</b>	<b>123</b>	<b>223</b>	<b>58</b>	<b>15</b>	<b>60</b>	<b>1,135</b>
Finance costs, net									-56
Income taxes									-200
<b>Profit for the period</b>									<b>880</b>
Operating assets <sup>1)</sup>	3,586	2,283	666	1,121	2,287	304	1,691	-326	11,612
Deferred tax assets									446
Other non-operating assets									132
Other financial assets									1,721
<b>Total assets</b>									<b>13,911</b>
Operating liabilities <sup>1)</sup>	245	34	165	137	505	43	179	-295	1,013
Deferred tax liabilities									457
Other liabilities									978
Other financial liabilities									3,226
<b>Total liabilities</b>									<b>5,673</b>
<b>Other items</b>									
Change in fair value of forest assets and wood harvested	29	-	-	-	-	-	59	-	88
Share of results of associates and joint ventures	2	-1	-	-	2	-	3	-	5
Depreciation and amortisation	-171	-9	-33	-91	-164	-22	-13	1	-503
Impairment charges	-1	-	-	-	-49	-	-	10	-41
Capital employed, 31 December	3,341	2,249	501	984	1,782	261	1,512	27	10,657
Average capital employed	3,231	2,340	524	1,012	1,964	259	1,541	-36	10,833
Capital expenditure	188	1	19	15	49	45	9	-1	325
Capital expenditure, excluding acquisitions and shares	188	1	19	15	49	45	9	-1	325
Comparable ROCE, %	12.6	5.0	25.5	12.1	14.3	22.6	0.9	-	10.6
Personnel, 31 December	2,630	71	3,062	1,984	8,664	2,469	442	-12	19,310

<sup>1)</sup> Business area's operating assets include goodwill, other intangible assets, property, plant and equipment, forest assets, energy shareholdings, investments in associates and joint-ventures, inventories and trade receivables. Operating liabilities include trade payables and advances received.

<sup>2)</sup> Eliminations and reconciliations include the elimination of internal sales and internal inventory margin and the consolidation of MPI as a joint operation. In addition the changes in fair value of unrealised cash flow and commodity hedges that are not allocated to segments are included in reconciliations.

In 2016, UPM has relabeled the previously referenced "excluding special items" non-GAAP financial measures with "comparable" performance measures as published in » [UPM's stock exchange release on 14 April 2016](#).

» [Refer Note 10.2](#), Alternative performance measures, for definitions of key figures and reconciliation to measures presented in the consolidated income statement and balance sheet prepared in accordance with IFRS.

**Business area information for the year ended 31 December 2015**

EURm, OR AS INDICATED	UPM BIOREFINING	UPM ENERGY	UPM RAFLATAC	UPM SPECIALTY PAPERS	UPM PAPER ENA	UPM PLYWOOD	OTHER OPERATIONS	ELIMINATIONS AND RECONCI- LIATIONS <sup>2)</sup>	GROUP
External sales	1,668	237	1,409	962	5,036	418	403	5	10,138
Internal sales	604	178	-	206	20	21	3	-1,032	-
<b>Total sales</b>	<b>2,272</b>	<b>415</b>	<b>1,409</b>	<b>1,168</b>	<b>5,056</b>	<b>439</b>	<b>406</b>	<b>-1,027</b>	<b>10,138</b>
<b>Comparable EBIT</b>	<b>467</b>	<b>181</b>	<b>102</b>	<b>55</b>	<b>24</b>	<b>55</b>	<b>38</b>	<b>-6</b>	<b>916</b>
Items affecting comparability in operating profit	-1	-26	-3	-	8	-2	268	-18	226
<b>Operating profit</b>	<b>466</b>	<b>155</b>	<b>99</b>	<b>55</b>	<b>32</b>	<b>53</b>	<b>306</b>	<b>-24</b>	<b>1,142</b>
Finance costs, net									-67
Income taxes									-159
<b>Profit for the period</b>									<b>916</b>
Operating assets <sup>1)</sup>	3,384	2,425	697	1,200	2,637	284	1,720	-218	12,129
Deferred tax assets									466
Other non-operating assets									200
Other financial assets									1,398
<b>Total assets</b>									<b>14,193</b>
Operating liabilities <sup>1)</sup>	197	12	140	141	435	31	145	-164	937
Deferred tax liabilities									456
Other liabilities									935
Other financial liabilities									3,921
<b>Total liabilities</b>									<b>6,249</b>
<b>Other items</b>									
Change in fair value of forest assets and wood harvested	21	-	-	-	-	-	331	-	352
Share of results of associates and joint ventures	1	-	-	-	1	-	1	-	3
Depreciation and amortisation	-169	-11	-35	-86	-190	-23	-13	3	-524
Impairment charges	-	-	-	-	-	-	-	-	-
Capital employed, 31 December	3,187	2,413	557	1,059	2,202	253	1,575	-236	11,010
Average capital employed	3,191	2,716	581	1,012	2,289	263	1,483	-558	10,977
Capital expenditure	161	35	22	211	57	23	11	-	520
Capital expenditure, excluding acquisitions and shares	159	3	22	211	57	23	11	-	486
Comparable ROCE, %	14.6	6.7	17.6	5.4	1.0	20.9	2.6	-	8.3
Personnel, 31 December	2,593	73	2,894	1,738	9,472	2,469	443	-104	19,578

<sup>1)</sup> Business area's operating assets include goodwill, other intangible assets, property, plant and equipment, forest assets, energy shareholdings, investments in associates and joint-ventures, inventories and trade receivables. Operating liabilities include trade payables and advances received.

<sup>2)</sup> Eliminations and reconciliations include the elimination of internal sales and internal inventory margin and the consolidation of MPI as a joint operation. In addition the changes in fair value of unrealised cash flow and commodity hedges that are not allocated to segments are included in reconciliations.

In 2016, UPM has relabeled the previously referenced "excluding special items" non-GAAP financial measures with "comparable" performance measures as published in » [UPM's stock exchange release on 14 April 2016](#).

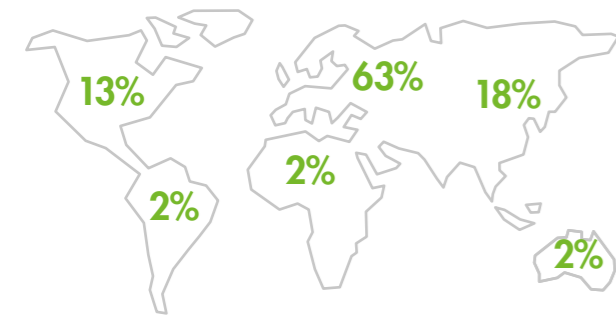
» [Refer Note 10.2](#), Alternative performance measures, for definitions of key figures and reconciliation to measures presented in the consolidated income statement and balance sheet prepared in accordance with IFRS.

**Items affecting comparability**

EURm	2016	2015
<b>In operating profit:</b>		
Impairment charges	-35	-
Restructuring charges	-48	-5
Change in fair value of unrealised cash flow and commodity hedges	27	-18
Capital gains on sale of non-current assets	49	6
Fair value changes of forest assets resulting from changes in estimates	-	265
Other non-operational items	-	-22
<b>Total</b>	<b>-7</b>	<b>226</b>
<b>In finance costs:</b>		
Losses on sale of associates and joint ventures	-2	-
<b>Total</b>	<b>-2</b>	<b>-</b>
<b>Total in profit before tax</b>	<b>-9</b>	<b>226</b>
<b>In income taxes:</b>		
Taxes related to items affecting comparability	7	-44
Changes in tax rates	4	-
<b>Total</b>	<b>11</b>	<b>-44</b>
<b>Total in profit for the period</b>	<b>1</b>	<b>182</b>

In 2016, items affecting in comparability in operating profit include impairment charges of EUR 11 million relating to Madison mill closure, EUR 23 million relating to planned closure of Steyermühl paper machine 3 and EUR 1 million relating to planned closure of Augsburg paper machine 2. Restructuring charges reported as items affecting comparability include EUR 13 million relating to Madison mill closure, EUR 22 million relating to planned closure of Steyermühl paper machine 3, EUR 18 million relating to planned closure of Augsburg paper machine 2 and income of EUR 5 million relating to reversals of restructuring provisions of prior capacity closures. Capital gains affecting the comparability comprise of a gain of EUR 47 million relating to sale of Schwedt mill assets and EUR 2 million relating to sale of other assets.

In 2015, fair value increase of forest assets in Finland totalling EUR 265 million, due to adjusted long-term wood price estimates and a change in the discount rate, is reported in items affecting comparability. Other non-operational items affecting comparability include EUR 19 million project expenses of Olkiluoto 4 nuclear power plant and EUR 3 million other expenses. Capital gains affecting the comparability comprise of a gain of EUR 3 million relating to the sale of Tilhill Forestry Ltd shares and EUR 3 million relating to the sale of other assets.

**Sales by destination****Sales by country**

EURm	2016	2015
Finland	886	900
Germany	1,699	1,658
United States	1,217	1,253
United Kingdom	715	916
China	860	852
France	434	421
Uruguay	48	61
Other EU countries	2,099	2,103
Other European countries	383	436
Rest of world	1,472	1,538
<b>Total</b>	<b>9,812</b>	<b>10,138</b>

**Total assets and capital expenditure by country**

EURm	Assets		Capital expenditure	
	2016	2015	2016	2015
Finland	8,566	8,524	157	218
Germany	1,008	1,148	18	20
United States	437	491	3	5
United Kingdom	185	211	8	8
China	879	1,037	13	215
France	71	63	3	2
Uruguay	2,010	2,004	84	26
Other EU countries	325	325	33	22
Other European countries	91	71	5	2
Rest of world	340	319	1	2
<b>Total</b>	<b>13,911</b>	<b>14,193</b>	<b>325</b>	<b>520</b>

**2.2 Sales**

UPM generates revenue mainly from the sale of several types of products.

UPM sells a proportion of its products to several major customers. The largest customer in terms of sales represented approximately 3% of UPM's sales in 2016 and 2015, and the ten largest customers represented approximately 16% (15%) of such sales. » [Refer Note 2.1](#) Business areas for information on UPM products.

**Sales by business area**

EURm	2016	2015	Change
UPM Biorefining	2,206	2,272	-3%
UPM Energy	357	415	-14%
UPM Raflatac	1,437	1,409	2%
UPM Specialty Papers	1,273	1,168	9%
UPM Paper ENA	4,818	5,056	-5%
UPM Plywood	444	439	1%
Other operations	285	406	-30%
Eliminations	-1,009	-1,027	-
<b>Total</b>	<b>9,812</b>	<b>10,138</b>	<b>-3%</b>

The biggest factor affecting UPM's financial results is the sales price of paper. A change in the volume delivered has less than half of the effect of the same percentage change in sale prices.

**Effect of a 10% change in prices on operating profit for the year**

EURm	2016	2015
Papers in UPM Paper ENA	471	501
Fine and specialty papers in UPM Specialty Papers	106	97
Label materials in UPM Raflatac	144	141
Plywood	41	41
Sawn timber	30	30
Chemical pulp (net effect)	33	21

**Accounting policies**

Revenue from UPM's product sales is recognised when the customer takes title and assumes the risks and rewards of ownership. The timing of revenue recognition is largely dependent on delivery terms. Group terms of delivery are based on Incoterms 2010, the official rules for interpretation of trade terms issued by the International Chamber of Commerce. Revenue is recorded when the product is delivered to the destination point for terms designated Delivered Duty Paid ("DDP") or Delivered at Place ("DAP"). For sales transactions designated Free on Carrier ("FCA"), Carriage paid to ("CPT") or Carriage and Insurance Paid to ("CIP"), revenue is recorded at the time of shipment.

UPM sells energy to NordPool electricity market. Revenue is recognised when electricity is transmitted.

UPM provides forest expertise and contracting services to woodland and forestry owners. Revenues from services are recorded when the service has been performed.

Sales are recognised net of indirect sales taxes, discounts, rebates and cash flow hedging results of sales in foreign currency as well as hedges of energy sales.

**2.3 Operating expenses and other operating income****Operating expenses**

Operating expenses excluding forest assets fair value change, wood harvested and share of results of associates and joint ventures are presented below.

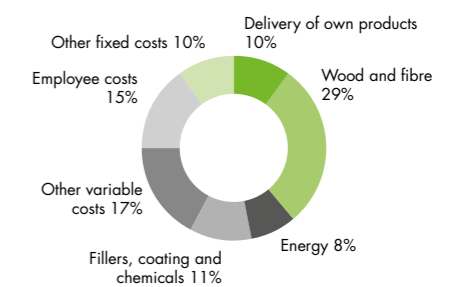
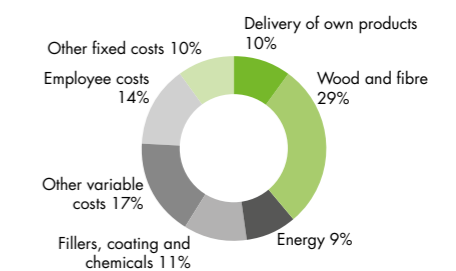
EURm	2016	2015
<b>Costs and expenses</b>		
Raw materials, consumables and goods	5,376	5,784
Employee costs <sup>1)</sup>	1,246	1,257
Other operating costs and expenses <sup>2)</sup>	884	943
Delivery costs and other external charges	859	856
<b>Total</b>	<b>8,365</b>	<b>8,840</b>

<sup>1)</sup> » [Refer Note 3](#). Employee rewards, for further information.

**<sup>2)</sup> Distribution of other operating costs and expenses**

EURm	2016	2015
Rents and lease expenses	48	51
Emission expenses	9	14
Losses on sale of non-current assets	3	2
Credit losses	10	18
Maintenance and other operating expenses <sup>1)</sup>	815	858
<b>Total</b>	<b>884</b>	<b>943</b>

<sup>1)</sup> Other operating expenses include, among others, energy as well as expenses related to services and group's administration.

**Cost structure 2016****Cost structure 2015****Auditor's fees**

EURm	2016	2015
Audit services	2.3	2.3
Tax consulting	0.7	0.8
Other services	0.6	0.5
<b>Total</b>	<b>3.6</b>	<b>3.6</b>

### Research and development costs

The research and development costs included in operating expenses were EUR 40 million (37 million) in 2016. The focus was on new technologies and developing businesses.

### Government grants

In 2016, government grants recognised as deduction of operating expenses totalled to EUR 8 million (6 million) of which EUR 6 million (6 million) relates to Finland, EUR 2 million (0 million) to UK and China. In addition, the group received emission rights from governments amounting to EUR 16 million (22 million) of which EUR 8 million (9 million) relates to Finland, EUR 6 million (9 million) to Germany, EUR 1 million (1 million) to Austria, EUR 1 million (2 million) to UK and EUR 0 million (1 million) to France.

### Other operating income

EURm	2016	2015
Gains on sale of non-current assets	59	20
Rental income	16	15
Emission rights received	16	22
Derivatives, non-qualifying hedges	28	-78
Exchange rate gains and losses	6	18
Other	16	16
<b>Total</b>	<b>140</b>	<b>13</b>

In 2016, gains on sale of non-current assets includes EUR 47 million related to sale of Schwedt mill assets.

### Emission rights

The group has recognised in Other operating income of EUR 16 million (22 million) income and under Other operating costs and expenses of EUR 9 million (14 million) expenses relating to CO<sub>2</sub> emissions. The liability to cover the obligation to return emission rights amounted to EUR 9 million (14 million) and is recognised in provisions. The emission rights recognised in intangible assets are specified below.

EURm	2016	2015
<b>Carrying value, at 1 January</b>	<b>52</b>	<b>43</b>
Emission rights received and purchased	14	24
Deliveries and disposals	-14	-15
Impairment	-7	-
Translation differences	-1	-
<b>Carrying value, at 31 December</b>	<b>45</b>	<b>52</b>
Accumulated costs	52	54
Accumulated impairments	-7	-2
<b>Carrying value, at 31 December</b>	<b>45</b>	<b>52</b>

## Accounting policies

### Research and development costs

Research and development costs are expensed as incurred, except for certain development costs, which are capitalised as they generate future economic benefits, and UPM can measure the cost reliably. Capitalised development costs are amortised on a systematic basis over their expected useful lives, usually not exceeding five years.

### Government grants

Government grants are recognised at fair value where there is a reasonable assurance that the grant will be received and the group will comply with the attached conditions. Government grants relating to the purchase of property, plant and equipment are deducted from

the acquisition cost of the asset and accordingly directly reduce the annual depreciation of the underlying asset. Other government grants are recognised in the income statement in the period necessary to match them with the costs they are intended to compensate.

### Other operating income

Other operating income mainly includes gains on the disposal of non-current assets and rental income. Further, other operating income includes foreign exchange gains and losses in respect of UPM's normal business activities. Gains and losses on derivatives not qualifying hedge accounting are also recognised in other operating income.

### Emission rights

The group participates in the European Emissions Trading Scheme aimed at reducing greenhouse gas emissions. Emission rights received from governments free of charge to emit a fixed tonnage of carbon dioxide in a fixed period of time give rise to an intangible asset for the emission rights, a government grant and a liability for the obligation to deliver emission rights equal to the emissions that have been made during the compliance period. Emission rights are initially recognised as intangible assets based on market value at the date of initial recognition. Emission rights are not amortised. If the market price of emissions rights at the balance sheet date is less than the recognised costs, any surplus emission rights that are not required to cover actual and estimated emissions during the financial year, are impaired to the market price.

Government grants are recognised as deferred income in the balance sheet at the same time as emission rights and are recognised in other operating income in the income statement, systematically, over the compliance period to which the corresponding emission rights relate.

The liability to deliver emission rights is recognised based on actual emissions. The emissions realised are expensed under other operating costs and expenses in the income statement and presented as a provision in the balance sheet. The liability is settled using emission rights on hand, measured at the carrying amount of those emission rights. Emission rights and associated provisions are derecognised when disposed. Any profit or loss represents the costs of purchasing additional rights to cover excess emissions, the sale of unused rights in the case realised emission are under emission rights received free of charge or the impairment of unused emission rights.

## 2.4 Earnings per share and dividend

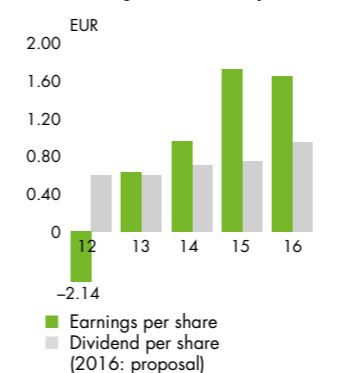
According to UPM dividend policy approved by the Board of Directors in 2015, the company aims to pay an attractive dividend amounting to 30-40% of the group annual operating cash flow per share.

The dividend paid in 2016 were EUR 400 million (EUR 0.75 per share) which is 34% of the operating cash flow per share and in 2015 EUR 373 million (EUR 0.70 per share). The Board of Directors proposes to the Annual General Meeting that a dividend of EUR 506.8 million, EUR 0.95 per share, will be paid in respect of 2016. The proposed dividend represents 30% of UPM's operating cash flow per share for the year 2016.

### Earnings per share

	2016	2015
Profit attributable to owners of the parent company, EURm	879	916
Weighted average no. of shares (1,000)	533,505	533,505
Basic earnings per share, EUR	1.65	1.72
Diluted earnings per share, EUR	1.65	1.72

### Earnings and dividend per share



## 3. Employee rewards

### 3.1 Employee costs

EURm	2016	2015
Salaries and fees	969	967
Share-based payments	24	16
Pension and other post-employment benefits, defined benefit plans	21	32
Pension costs, defined contribution plans	107	117
Other indirect employee costs <sup>1)</sup>	124	125
<b>Total</b>	<b>1,246</b>	<b>1,257</b>

<sup>1)</sup> Other indirect employee expenses primarily include other statutory social expenses, excluding pension expenses.

## Accounting policies

### Earnings per share

Earnings per share (EPS) is the amount of profit for the period attributable to each ordinary share. The basic earnings per share are computed using the weighted average number of shares outstanding during the period. Diluted earnings per share are computed using the weighted average number of shares outstanding during the period plus the dilutive effect of share options. The group did not have share-option schemes at the end of 2016 and 2015.

### Dividend

Dividend distribution to the owners of the parent company is recognised as a liability in the group's consolidated financial statements in the period in which the dividends are approved by the parent company's shareholders.

## 3.2 Key management personnel

### Remuneration policy

The Annual General Meeting 2016 decided to leave the Board remuneration unchanged. The Chairman of the Board receives an annual fee of EUR 175,000, Deputy Chairman of the Board and Chairman of the Audit Committee EUR 120,000 and other members of the Board EUR 95,000. No annual fee is paid to the President and CEO for his role as a member of the Board. The annual fee is settled partly in company's shares and partly in cash so that 40% of the fee is paid in the company shares to be acquired on the Board members' behalf, and the rest in cash. The company pays the costs and transfer tax payable related to the acquisition of the company shares.

In 2016, 4,235 (4,193) company shares were paid to the Chairman, 2,904 (2,875) shares to the Deputy Chairman and the Chairman of the Audit Committee respectively and 2,299 (2,276) shares to each of the other members of the Board.

### Shareholdings (no. of shares) and fees of the Board of Directors

	Shareholdings 31 December		Fees (EUR 1,000)	
	2016	2015	2016	2015
<b>Board members</b>				
Björn Wahlroos, Chairman	256,677	254,442	175	175
Berndt Brunow, Deputy Chairman	306,482	303,578	120	120
Henrik Ehrnrooth	4,575	2,276	95	95
Piia-Noora Kauppi	14,460	11,856	120	120
Wendy E. Lane	35,224	32,925	95	95
Jussi Pesonen, President and CEO	304,064	220,275	-	-
Ari Puheloinen	6,600	4,301	95	95
Veli-Matti Reinikkala	38,396	36,097	95	95
Suzanne Thoma	4,575	2,276	95	95
Kim Wahl	16,374	14,075	95	95
<b>Total</b>	<b>987,427</b>	<b>882,101</b>	<b>985</b>	<b>985</b>

**Salaries, fees and other benefits to the President and CEO and the Group Executive Team**

EUR 1,000	President and CEO Jussi Pesonen		Other members of group executive team <sup>1)</sup>	
	2016	2015	2016	2015
Salaries	1,049	1,052	3,564	3,455
Incentives	888	856	1,779	1,733
Share rewards	3,098	824	6,269	1,805
Benefits	30	27	231	238
<b>Total</b>	<b>5,065</b>	<b>2,759</b>	<b>11,843</b>	<b>7,231</b>

<sup>1)</sup> 11 members in 2016 and 2015.

In 2016, costs under the Finnish statutory pension scheme for the President and CEO amounted to EUR 370,000 (353,000) and payments under the voluntary pension plan were EUR 1,000,000 (1,000,000).

In 2016, costs under the Finnish and German statutory pension schemes for Group Executive Team (GET) members (excluding the President and CEO) amounted to EUR 881,000 (900,000) and costs under the voluntary pension plan were EUR 818,000 (651,000).

The total remuneration of the President and CEO and the members of the Group Executive Team consists of base salary and benefits, short-term incentives and long-term share-based incentives.

The short-term incentive plan for the President and CEO and the members of the Group Executive Team has been linked with achievement of the predetermined financial targets of the group or business areas and individual targets. The incentives amount to a total maximum of 100% of annual base salary to the business area executives and to a total maximum of 70% of annual base salary to the other members of the Group Executive Team. For the President and CEO the maximum annual incentive amounts to 150% of the annual base salary.

The expenses recognised in income statement in respect of share-based payments for the Group Executive Team were EUR 9.2 million (5.4 million).

In accordance with his service contract, the retirement age of the President and CEO Jussi Pesonen, is 60. For the President and CEO, the target pension is 60% of the average indexed earnings from the

last ten years of employment calculated according to the Finnish statutory pension scheme. The costs of lowering the retirement age to 60 is covered by supplementing the statutory pension with a voluntary defined benefit pension plan. Should the President and CEO leave the company before reaching the age of 60, an immediate vesting right corresponding to 100% of earned pension (pro rata) will be applied. The retirement age of the other members of the Group Executive Team is 63. The expenses of the President and CEO's defined benefit pension plan in 2016 were EUR 0.5 million (0.6 million), and the plan assets amounted to EUR 2.6 million (1.6 million) and obligation to EUR 1.8 million (0.9 million). Other Group Executive Team members are under defined contribution plans.

In case the notice of termination is given to the President and CEO, a severance pay of 24 months' base salary will be paid in addition to the salary for six months' notice period. Should the President and CEO give a notice of termination to the company, no severance pay will be paid in addition to the salary for the notice period. For other members of the Group Executive Team, the period for additional severance pay is 12 months, in addition to the six months' salary for the notice period, unless notice is given for reasons that are solely attributable to the executive.

If there is a change in the control over the company, the President and CEO may terminate his service contract within three months and each member of the Group Executive Team may terminate his/her service contract within one month from the date of the event that triggered the change of control and shall receive compensation equivalent to 24 months' base salary.

**3.3 Share-based payments**

UPM offers reward and recognition with an emphasis of high performance. All UPM's employees belong to a unified annual Short Term Incentive (STI) scheme. In addition, UPM has two long-term incentive plans: the Performance Share Plan (PSP) for senior executives and the Deferred Bonus Plan (DBP) for other key employees.

**Performance Share Plan**

The Performance Share Plan (PSP) is targeted at Group Executive Team members and other selected members of the management. Under the ongoing plans the UPM shares are awarded based on the total shareholder return during a three-year earning period. The earned shares are delivered after the earning period has ended. Total shareholder return takes into account share price appreciation and paid dividends.

PERFORMANCE SHARE PLANS	PSP 2013-2015	PSP 2014-2016	PSP 2015-2017	PSP 2016-2018
No. of participants at 31 December 2016	33	24	24	24
Actual achievement	90.4%	100%	-	-
Max no. of shares to be delivered <sup>1)</sup>				
to the President and CEO	197,976	116,785	125,000	112,500
to other members of GET	397,760	352,689	380,000	360,000
to other key individuals	402,280	280,284	295,000	263,000
Total max no. of shares to be delivered	998,016	749,758	800,000	735,500
Share delivery (year)	2016	2017	2018	2019
Earning criteria (weighting)	Operating cash flow (60%) and EPS (40%)	Total shareholder return (100%)	Total shareholder return (100%)	Total shareholder return (100%)

<sup>1)</sup> For PSP 2013–2015 and PSP 2014–2016, the gross amount of the actual no. of shares earned.

**Deferred Bonus Plan**

The Deferred Bonus Plan (DBP) is targeted at other selected key employees of the group and it consists of annually commencing plans. Deferred Bonus Plan share incentives are based on achievement of group and /or business area EBITDA targets. Each plan consists of

a one-year earning period and a two-year restriction period. Prior to share delivery, the share rewards earned are adjusted with dividends and other capital distributions, if any, paid to all shareholders during the restriction period.

DEFERRED BONUS PLANS	DBP 2013	DBP 2014	DBP 2015	DBP 2016
No. of participants (at grant)	560	395	350	340
No. of participants (at 31 December 2016)	505	367	339	335
Max no. of shares to be delivered (at grant)	1,640,000	950,000	800,000	770,000
Estimated no. of shares to be delivered at 31 December 2016 <sup>1)</sup>	255,451	317,125	386,432	323,017
Share delivery (year)	2016	2017	2018	2019
Earning criteria (weighting)	Group/Business area EBITDA	Group/Business area EBITDA	Group/Business area EBITDA	Group/Business area EBITDA

<sup>1)</sup> For DBP 2013 and DBP 2014, the gross amount of the actual no. of shares earned.

The indicated actuals and estimates of the share rewards under the Performance Share Plan and the Deferred Bonus Plan represent the gross amount of the rewards of which the applicable taxes will be deducted before the shares are delivered to the participants. The amount of estimated payroll tax accruals accounted for as share-based payment liabilities at 31 December 2016 were EUR 22.7 million (14.7 million).

**Accounting policies**

The group's long-term share incentive plans are recognised as equity-settled or cash-settled share-based payment transactions depending on the settlement. Shares are valued using the market rate on the grant date. The settlement is a combination of shares and cash. The group may obtain the necessary shares by using its treasury shares or may purchase shares from the market. PSP and DBP share deliveries are executed by using already existing shares and the plans, therefore, have no dilutive effect.

**3.4 Retirement benefit obligations**

The group operates various pension schemes in accordance with local conditions and practices in the countries of operations. Retirement benefits are employee benefits that are payable usually after the termination of employment, such as pensions and post-employment

medical care. The pension plans are generally funded through payments to insurance companies or to trustee-administered funds or foundations and classified as defined contribution plans or defined benefit plans.

Defined benefit assets and liabilities recognised in the balance sheet are presented below:

EURm	2016					2015				
	FINLAND	UK	GERMANY	OTHER COUNTRIES	TOTAL	FINLAND	UK	GERMANY	OTHER COUNTRIES	TOTAL
Present value of funded obligations	327	563	34	39	963	314	504	29	41	888
Fair value of plan assets	-396	-426	-3	-33	-858	-406	-409	-2	-34	-851
Deficit (+)/surplus (-)	-70	137	31	6	104	-92	95	27	7	37
Present value of unfunded obligations	-	-	520	90	610	-	-	490	92	582
<b>Net defined benefit liability (+)/asset (-)</b>	<b>-70</b>	<b>137</b>	<b>552</b>	<b>96</b>	<b>714</b>	<b>-92</b>	<b>95</b>	<b>517</b>	<b>99</b>	<b>619</b>
Net retirement benefit asset in the balance sheet	-70	-	-	-1	-71	-92	-	-	-1	-93
Net retirement benefit liability in the balance sheet <sup>1)</sup>	-	137	552	95	784	-	95	517	100	712

<sup>1)</sup> Net retirement benefit liability in the balance sheet includes other long-term employee benefits of EUR 33 million (35 million) in 2016.

About 90% of the group's defined benefit arrangements exist in Finland, in the UK and in Germany. The group has defined benefit obligations also in Austria, Holland, France, Canada and in the US. Approximately a quarter of UPM's employees are active members of defined benefit arrangement plans.

**Finland**

In Finland employers are obliged to insure their employees for statutory benefits, as determined in Employee's Pension Act (TyEL). TyEL provides the employee with insurance protection for old age, disability and death. The benefits can be insured with an insurance

company or the employer can establish a fund or a foundation to manage the statutory benefits.

Approximately 90% of group's Finnish employees are insured with an insurance company and these arrangements qualify as defined contribution plans. Approximately 10% of employees are insured with TyEL foundation (Kymin eläkesäätiö). The TyEL foundation is administered by the representatives of both the employer and the employees. The foundation has named an authorised representative to take care of its regular operations. The plan is supervised by Financial Supervisory Authority. The foundation is classified as a defined benefit plan for the benefits that must be funded nationally and is the

most significant defined benefit pension plan in Finland for UPM.

In Finland, the reform of TyEL will come into effect as of beginning of 2017. The effect of the reform to the defined benefit obligation of the TyEL foundation was recognised in 2015 as a past service cost amounting to EUR 4 million.

## UK

In the UK, the group operates a legacy defined benefit scheme providing benefits that are linked to the salary level near retirement age or an earlier date of leaving service. The scheme is closed both

for new members and future accrual for old members. Part of the scheme is a defined contribution plan and is open to all current employees. The UK pension scheme operates under a single trust which is independent from the group.

## Germany

In Germany employees within defined benefit arrangements are entitled to annual pensions on retirement based on their service and final salary. All significant defined benefit plans are closed for new employees.

## Present value of obligation and fair value of plan assets

EURm	Pension and other post-employment benefits 2016			Pension and other post-employment benefits 2015		
	PRESENT VALUE OF OBLIGATION	FAIR VALUE OF PLAN ASSETS	NET DEFINED BENEFIT LIABILITY/ (ASSET)	PRESENT VALUE OF OBLIGATION	FAIR VALUE OF PLAN ASSETS	NET DEFINED BENEFIT LIABILITY/ (ASSET)
<b>Carrying value, at 1 January</b>	1,470	-851	619	1,581	-794	787
Current service cost	12	-	12	15	-	15
Past service cost	-6	-	-6	2	-	2
Interest expense (+) income (-)	37	-22	15	36	-21	15
Total included in employee costs (Note 3.1)	43	-22	21	53	-21	32
Actuarial gains and losses arising from changes in demographic assumptions	-1	-	-1	13	-	13
Actuarial gains and losses arising from changes in financial assumptions	169	-	169	-158	-	-158
Actuarial gains and losses arising from experience adjustments	19	-	19	8	-	8
Return on plan assets, excluding amounts included in interest expense (+) income (-)	-	-67	-67	-	-16	-16
<b>Total remeasurement gains (-) and losses (+) included in other comprehensive income</b>	187	-67	120	-137	-16	-153
Benefits paid	-56	56	-	-59	59	-
Contributions by the employer	-	-33	-33	-	-55	-55
Translation differences	-71	59	-12	32	-24	8
<b>Carrying value, at 31 December</b>	1,573	-858	714	1,470	-851	619

## Actuarial risks

Defined benefit plans typically expose the group to the following actuarial risks:

### Investment risk (asset volatility)

The group is exposed to changes of assets' values especially in the investments of the foundations and schemes in Finland and in the UK. The asset values of these arrangements constitute 96% of total asset values in defined benefit plans within group.

### Interest risk

Discount rates used in calculations are based on high-quality corporate bond yield curves in currency in which the benefits are paid. A decrease in the discount rate would increase the plan liabilities. The maturities of yields are reflecting the durations of the underlying obligations. The weighted average duration of group's defined benefit obligation is 17 years (17 years) at the end of 2016.

### Inflation risk

In the Finnish plan, the inflation risk is not significant as changes in the inflation assumption are mainly covered by the TyEL pooling system.

In the UK, the pensions in payment are tied to Retail Price Index whilst being tied to Consumer Price Index during deferral. An increase of 0.5% in indexes will increase the liabilities by some EUR 38 million. In Germany the pensions have to be adjusted in accordance with the Consumer Price Index.

### Salary risk

The present value of the net retirement benefit assets and liabilities is calculated by reference to the expected future salaries of plan participants. An increase in the salary of the plan participants would increase the plan liabilities. In Finland, the salary risk is minor as well as in UK, where the changes in salary levels have no impact on the funding position as all defined benefit arrangements in UK are closed to future accrual. In Germany, an increase of 0.5% in expected future salaries would increase the obligation by EUR 16 million.

### Life expectancy

Adjustments in mortality assumption have an impact on group's defined benefit obligation. An increase in life expectancy by one year will increase the obligation in Finland by EUR 13 million, in the UK by EUR 17 million and in Germany by EUR 21 million.



## Key estimates and judgements

Several actuarial assumptions are used in calculating the expense and liability related to the plans. Statistical information used may differ materially from actual results due to, among others, changing market and economic conditions, or changes in service period of plan participants. Significant differences in actual experience or significant changes in assumptions may affect the future amounts of the defined benefit obligation and future expense.

## Actuarial assumptions

The weighted average principal assumptions used in the valuations of the defined benefit obligations are detailed below:

	FINLAND		UK		GERMANY		OTHER COUNTRIES	
	2016	2015	2016	2015	2016	2015	2016	2015
Discount rate %	1.60	2.13	2.60	3.60	1.77	2.20	2.52	2.94
Inflation rate %	1.64	1.59	3.35	3.25	1.70	1.70	1.88	2.05
Rate of salary increase %	1.64	1.59	n/a	n/a	2.50	2.50	2.55	2.42
Rate of pension increase %	0.88	0.88	3.20	3.10	1.70	1.70	0.98	1.01
Expected average remaining working years of participants	11.8	13.7	13.6	13.0	10.6	11.0	10.5	10.5

## Sensitivity analysis of defined benefit obligations

The sensitivity analysis shows the effect of the change in assumption. The analysis assume that all other assumptions remain unchanged. The projected unit credit method has been applied when calculating the obligation as well as these sensitivities.

EURm	0.5% INCREASE		0.5% DECREASE	
	2016	2015	2016	2015
Discount rate %	-125	-112	144	126
Rate of salary increase %	18	17	-17	-15
Rate of pension increase %	77	69	-75	-63
Life expectancy + 1 year	53	45	n/a	n/a

A negative change indicates a decrease in the defined benefit obligation. A positive change indicates an increase in the defined benefit obligation.

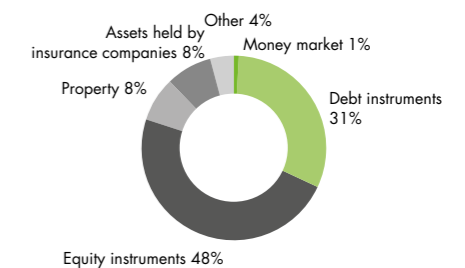
## Plan assets by categories at 31 December

EURm	2016		2015	
	Quoted	Unquoted	Quoted	Unquoted
Money market	11	-	8	-
Debt instruments	267	-	267	-
Equity instruments	411	-	436	-
Property	36	33	42	34
Assets held by insurance companies	-	64	-	64
Other	-	35	-	-
<b>Total</b>	<b>726</b>	<b>132</b>	<b>753</b>	<b>98</b>

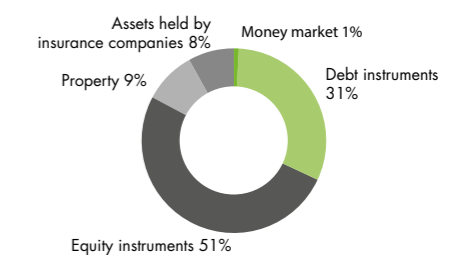
Plan assets include the company's shares with a fair value of EUR 1 million (1 million).

In 2017 contributions of EUR 47 million are expected to be paid to group's defined benefit plans. In 2016 contributions of EUR 33 million were paid to group's defined benefit plans.

### Plan assets by categories 2016



### Plan assets by categories 2015



## § Accounting policies

### Defined benefit pension plans

Plan benefits depend on salary and length of service. The defined benefit obligations are calculated annually by independent actuaries using the projected unit credit method. The present value of the defined benefit obligation is determined by discounting the estimated future cash outflows using interest rates of high-quality corporate bonds that are denominated in the currency in which the benefits will be paid and that have terms to maturity approximating the term of the related pension liability. The liability recognised in the balance sheet in respect of defined benefit pension plans is the present value of the defined benefit obligation at the balance sheet date less the fair value of plan assets. The cost of providing pensions is charged to the income statement as employee costs so as to spread the cost over the service lives of employees. Changes in actuarial assumptions and actuarial gains and losses arising from experience adjustments are charged or credited in other comprehensive income in the period in which they arise. Past service costs and gains or losses on settlement are recognised immediately in income when they occur.

### Defined contribution plans

For defined contribution plans, contributions are paid to pension insurance companies. Once the contributions have been paid, there are no further payment obligations. Contributions to defined contribution plans are charged to the income statement in the period to which the contributions relate.

### Other post-employment obligations

Some group companies provide post-employment medical and other benefits to their retirees. The entitlement to healthcare benefits is usually conditional on the employee remaining in service up to retirement age and the completion of a minimum service period. The expected costs of these benefits are accrued over the period of employment, using an accounting methodology similar to that for defined benefit pension plans. Valuations of these obligations are carried out by independent qualified actuaries.

## 4. Capital employed

UPM's capital employed primarily relates to its production facilities and both forest and energy assets. UPM aims to capture growth opportunities in its existing business portfolio and invest in projects with attractive and sustainable returns. In 2016, growth investments contributed significantly to UPM's earnings.

### Capital employed

EURm	2016	2015
Property, plant and equipment	4,657	4,895
Forest assets	1,734	1,738
Energy shareholdings	1,932	2,085
Goodwill and other intangible assets	545	570
Operating working capital	1,694	1,875
Provisions	-145	-154
Net retirement benefit assets and liabilities	-746	-654
Cash and cash equivalents	992	626
Other assets and liabilities	-3	19
Net deferred tax assets and liabilities	-11	10
Assets classified as held for sale	8	-
<b>Total</b>	<b>10,657</b>	<b>11,010</b>

### 4.1 Property, plant and equipment

EURm	LAND AND WATER AREAS	BUILDINGS	MACHINERY AND EQUIPMENT	OTHER TANGIBLE ASSETS	CONSTRUCTION IN PROGRESS	TOTAL
<b>2016</b>						
Accumulated costs	836	3,638	14,326	881	89	19,770
Accumulated depreciation and impairments	-34	-2,506	-11,824	-748	-	-15,113
<b>Carrying value, at 31 December</b>	<b>801</b>	<b>1,131</b>	<b>2,502</b>	<b>133</b>	<b>89</b>	<b>4,657</b>
<b>Carrying value, at 1 January</b>	<b>724</b>	<b>1,213</b>	<b>2,744</b>	<b>134</b>	<b>80</b>	<b>4,895</b>
Additions	76	4	13	4	222	319
Disposals	-17	-11	-8	-1	-	-36
Depreciations	-	-84	-377	-18	-	-478
Impairment	-	-12	-21	1	-	-32
Reclassifications	4	24	168	13	-214	-4
Translation differences	14	-4	-17	-	-	-6
<b>Carrying value, at 31 December</b>	<b>801</b>	<b>1,131</b>	<b>2,502</b>	<b>133</b>	<b>89</b>	<b>4,657</b>
<b>2015</b>						
Accumulated costs	758	3,737	14,740	902	80	20,217
Accumulated depreciation and impairments	-34	-2,524	-11,996	-768	-	-15,322
<b>Carrying value, at 31 December</b>	<b>724</b>	<b>1,213</b>	<b>2,744</b>	<b>134</b>	<b>80</b>	<b>4,895</b>
<b>Carrying value, at 1 January</b>	<b>674</b>	<b>1,133</b>	<b>2,420</b>	<b>114</b>	<b>366</b>	<b>4,707</b>
Additions	9	36	150	7	269	471
Disposals	-12	-1	-1	-	-	-14
Depreciations	-	-82	-388	-17	-	-487
Reclassifications	7	87	471	26	-563	28
Translation differences	46	40	92	4	8	190
<b>Carrying value, at 31 December</b>	<b>724</b>	<b>1,213</b>	<b>2,744</b>	<b>134</b>	<b>80</b>	<b>4,895</b>

### Capitalised borrowing costs

In 2016, the borrowing costs capitalised as part of non-current assets amounted to EUR 1 million (8 million). Amortisation of capitalised borrowing costs was EUR 4 million (4 million) and the average interest rate used 1.56% (4.99%), which represents the average costs to finance the projects.

### Capital expenditure

Capital expenditure, excluding acquisitions and shares, amounted to EUR 325 million (486 million) in 2016.

In 2016, UPM's major capital expenditures related to growth investments. The expansion of the Otepää plywood mill in Estonia and modernising UPM Kaukas pulp mill in Finland were finalised in 2016. In July 2016, UPM announced it will invest EUR 98 million in UPM Kymi pulp mill in Finland to further strengthen its position as a supplier of bleached chemical pulp for growing consumer and industrial end-use segments. Completion of the investment is scheduled for the end of 2017. In October 2016, UPM announced a EUR 35 million investment in UPM Raflatac factory in Poland to meet the increasing label stock demand in Europe. Completion of the investment is scheduled for first half of 2018.

In 2015 UPM's capital expenditures related to Otepää plywood mill in Estonia, Kaukas and Kymi pulp mills in Finland, share issue from Pohjolan Voima Oy to finance the Olkiluoto 3 nuclear power plant project, increasing of labelstock coating capacity in the Asia-Pacific region, production capacity for film labelstock business in Poland and new paper machine at Changshu mill in China.

### Major capital commitments at 31 December

EURm	2016	2015
Capacity increase / Kymi pulp mill	80	-
Capacity increase / Raflatac Poland	33	-
Debottlenecking / Kaukas pulp mill	-	49
Mill expansion / Otepää	-	30

### Impairment losses

In March 2016, UPM announced the closure of Madison Paper Industries paper mill in the US. Madison Paper Industries is a joint operation between UPM-Kymmene Inc. and Northern SC Paper Corp., a subsidiary of the New York Times Company. With the closure of the mill, UPM recognised impairment charges of EUR 9 million (EUR 20 million in UPM Paper ENA business area and the corresponding adjustment of EUR 11 million in eliminations and reconciliations) on property, plant and equipment. Hydropower assets located at the mill site have been classified as assets held for sale.

» Refer Note 8.4 Assets held for sale, for further information.

In November 2016, UPM announced the plan to close of SC paper machine 3 at UPM Steyrermühl mill in Austria and SC paper machine 2 at UPM Augsburg mill in Germany. The impairment charges recognised amounted to EUR 23 million and EUR 1 million, respectively, and affected UPM Paper ENA business area. The demand for SC papers, in line with other graphic papers, has been declining during the last years and the decline is expected to continue.

In 2015, there were no impairment charges for property, plant and equipment assets.

## § Accounting policies

### Property, plant and equipment

Property, plant and equipment is stated at historical cost. Costs of assets of acquired in business combinations are determined at fair value at the acquisition date. Depreciation is calculated on a straight-line basis and the carrying value is adjusted for impairment charges, if any. The carrying value of property, plant and equipment on the balance sheet represents the cost less accumulated depreciation and any impairment charges.

Borrowing costs incurred for the construction of any qualifying assets are capitalised during the period of time required to complete and prepare the asset for its intended use. Other borrowing costs are expensed.

Major renovations are capitalised and depreciated over the useful lives of the related asset. Ordinary expenses for repairs and maintenance are expensed as incurred.

Gains and losses on disposals are determined by comparing the disposal proceeds with the carrying amount and are included in other operating income and other operating expenses, respectively.

ASSESSED USEFUL LIVES	NUMBER OF YEARS
Land, not subject to depreciation	-
Buildings	20-50
Power plants	20-30
Heavy machinery	15-20
Light machinery	10-15
Equipment	5

### Impairment testing

Carrying values of individual items included in property, plant and equipment are reviewed at each closing date to determine whether there is any indication of impairment. The carrying value is written down immediately to the asset's recoverable amount if the carrying value exceeds the estimated recoverable amount. Assets that have an indefinite useful life are not subject to amortisation and are tested annually for impairment. The recoverable amount is determined as the higher of an asset's fair value less costs to sell and its value in use. Value in use is determined by discounting future cash flows expected to be generated by the asset. For the purposes of assessing impairment, assets are grouped at the lowest levels for which there are separately identifiable cash flows (cash-generating units).

Non-financial assets, other than goodwill, that have suffered impairment are reviewed for possible reversal of the impairment at each reporting date. Where an impairment loss is subsequently reversed, the carrying amount of the asset is increased to the revised estimate of its recoverable amount, but the increased carrying amount will not exceed the carrying amount that would have been determined had no impairment loss been recognised for the asset in prior years.

## § Key estimates and judgements

The estimations of useful lives, residual value as well as depreciation and amortisation methods require significant management judgement and are reviewed annually. Management makes estimates on the future cash flows expected to result from the use of the asset and its eventual disposal. While management believes that estimates of future cash flows are reasonable, different assumptions regarding such cash flows could materially affect valuations.

The long useful lives of assets, changes in estimated future sales prices of products, changes in product costs and changes in the discount rates used could lead to significant impairment charges.

Estimates are also made in an acquisition when determining the fair values and remaining useful lives of acquired intangible and tangible assets.

## 4.2 Forest assets

UPM is both a major forest owner and a purchaser of wood. Wood is a renewable material and the most important raw material for UPM's businesses. At the end of 2016, UPM owned 640,000 hectares of forest in Finland and 75,000 hectares of forest in United States. The company additionally has 255,000 hectares of forest plantations in Uruguay. The value of forest assets amounted to EUR 1,734 million (1,738 million) at the end of 2016. In 2016, UPM sourced 27.8 (26.1) million cubic meters of wood from around the world.

### Forest assets

EURm	2016	2015
<b>Carrying value, at 1 January</b>	1,738	1,469
Additions	26	16
Disposals	-72	-72
Wood harvested	-106	-91
Net change in fair value	133	377
Reclassifications	-1	-
Translation differences	15	39
<b>Carrying value, at 31 December</b>	1,734	1,738

Change in fair value, change due to harvesting and gains or losses on sale of forest assets are recognised in the income statement as a net amount totalling to EUR 88 million (352 million) in 2016.

In 2015, the fair value of forest assets in Finland was increased by EUR 265 million due to adjustment of long-term wood price estimates and change in discount rate. UPM continues to estimate a declining trend of real wood prices in Finland, although with a slightly slower rate than previously. In addition, the pre-tax discount rate used to determine the fair value of the Finnish forests was lowered from 7.5% to 7.0% in 2015.

## 4.3 Energy shareholdings

UPM is both a significant purchaser and producer of energy. The majority of electrical and thermal energy is consumed at the group's pulp and paper production. The production is mainly carried out by energy companies in which UPM has energy shareholdings. Energy shareholdings are unlisted equity investments. UPM does not have control or joint control of or significant influence in the said energy companies.

The value of energy shareholdings amounted to EUR 1,932 million

	Number of shares	Group holding %	Carrying value, EURm	
			2016	2015
Pohjolan Voima Oy, A series	8,176,191	61.24	315	324
Pohjolan Voima Oy, B series	4,140,132	58.11	1,036	1,166
Pohjolan Voima Oy, B2 series	2,414,940	51.13	179	169
Kemijoki Oy	179,189	7.33	297	314
Länsi-Suomen Voima Oy	10,220	51.10	92	92
Other	-	-	13	20
<b>Carrying value, at 31 December</b>			1,932	2,085

## § Accounting policies

The group divides all its forest assets for accounting purposes into growing forests, which are recognised as forest assets at fair value less costs to sell, and land, which is stated at cost. Any changes in the fair value of the growing forests are recognised in the operating profit in the income statement. The fair value is calculated on the basis of discounted future expected cash flows as there is a lack of a liquid market. Young saplings are valued at cost. The fair value of forest assets is a level 3 measure in terms of the fair value measurement hierarchy.

## 🔑 Key estimates and judgements

### Fair valuation

The valuation process of forest assets is complex and requires management estimates and judgment on assumptions that have a significant impact on the valuation of the group's forest assets.

Main factors used in the fair valuation of forest assets are estimates for growth and wood harvested, stumpage prices and discount rates. Stumpage price forecasts are based on the current prices adjusted by the management's estimates for the full remaining productive lives of the trees, up to 100 years for forests in Finland and in the US and up to 10 years for plantations in Uruguay. The cash flows are adjusted by selling costs and risks related to the future growth. Felling revenues and maintenance costs are estimated on the basis of actual costs and prices, taking into account the group's projection of future price and costs development. In addition, calculations take into account environmental restrictions.

The pre-tax discount rate used to determine the fair value of the Finnish forests in 2016 was 7.0% (7.0%) and for Uruguayan plantations 10.0% (10.0%). A decrease (increase) of one percentage point in discount rate would increase (decrease) the fair value of forest assets by approximately EUR 240 million (260 million).

(2,085 million) at the end of 2016. These energy companies supply energy or both energy and heat to their shareholders on a cost-price principle (Mankala-principle) which is widely applied in the Finnish energy industry. Under the Mankala-principle energy and/or heat is supplied to the shareholders in proportion to their ownership and each shareholder is, pursuant to the specific stipulations of the respective articles of association, severally responsible for its respective share of the production costs of the energy company concerned.

PVO's share capital is divided into different series of shares. The B and B2 series relate to PVO's shareholdings in Teollisuuden Voima Oyj (TVO). UPM has no direct shareholdings in TVO. TVO operates two nuclear power plants (Olkiluoto 1 and Olkiluoto 2) and constructs one new nuclear power plant in Olkiluoto (Olkiluoto 3), Finland. The operation of a nuclear power plant is governed by international, European Union and local nuclear regulatory regimes. Pursuant to the Finnish Nuclear Liability Act, the operator of a nuclear facility has a strict third-party liability in relation to nuclear accidents. Shareholders of power companies that own and operate nuclear power plants are not subject to the liability under the Nuclear Liability Act. In Finland, the future costs of conditioning, storage and final disposal of spent fuel, management of low and intermediate level radioactive waste as well as nuclear power plant decommissioning are provided for by a state established fund (the Finnish State Nuclear Waste Management Fund). The contributions to the Fund are intended to be sufficient to cover estimated future costs. These contributions have been taken into consideration in the fair value of the related energy shareholdings.

### Energy shareholdings

EURm	2016	2015
<b>Carrying value, at 1 January</b>	2,085	2,510
Additions	-	33
Impairment charges	1	-
Disposals	-6	-35
Reclassifications into level 3	-	1
Changes in fair value recognised in other comprehensive income	-148	-424
<b>Carrying value, at 31 December</b>	1,932	2,085

## § Accounting policies

Purchases of energy shareholdings are recognised on the settlement date initially at cost, including transaction costs, and subsequently measured at fair value through other comprehensive income, net of tax if applicable. When the investments are sold or impaired, the accumulated fair value adjustments in equity are recognised through the income statement. Significant or prolonged decline in the fair value of the security below its cost is considered when determining whether the investments are impaired. Any impairment losses recognised for these investments are not subsequently reversed.

The fair value of energy shareholdings is a level 3 measure in terms of the fair value measurement hierarchy.

## ! Key estimates and judgements

### Fair valuation and sensitivity

Valuation of energy shareholdings requires management's assumptions and estimates of a number of factors that may differ from the actual outcome which could lead to significant adjustment to the carrying amount of the asset. Fair value is determined on a discounted cash flow basis and the main factors impacting the future cash flows include future electricity prices, price trends and discount rates.

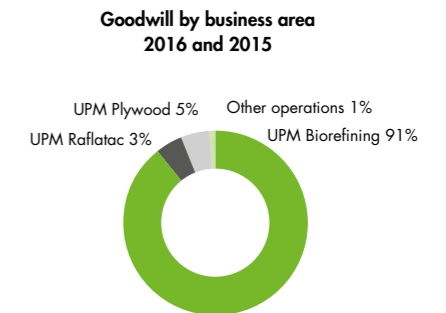
The electricity price estimate is based on a simulation of the Finnish area electricity price. A change of 5% in the electricity price used in the model would change the total value of the assets by EUR 333 million. The discount rate of 5.85% used in the valuation model is determined using the weighted average cost of capital method. A change of 0.5% in the discount rate would change the estimated fair value of the assets by approximately EUR 310 million.

Other uncertainties and risk factors relate to start-up schedule of the fixed price turn-key Olkiluoto 3 EPR nuclear power plant project and the on-going arbitration proceedings between the plant supplier AREVA-Siemens Consortium and the plant owner Teollisuuden Voima Oyj (TVO). UPM's indirect share of the capacity of Olkiluoto 3 EPR is approximately 31%, through its PVO B2 shares. The possible outcome of the arbitration proceedings has not been taken into account in the valuation. Changes in regulatory environment or taxation could also have an impact on the energy shareholdings' value.

» Refer Note 9.2 Litigation, for further information.

## 4.4 Goodwill and other intangible assets

The group's goodwill mainly relates to pulp operations in Finland and Uruguay belonging to UPM Biorefining business area.



### Goodwill by business area

EURm	2016	2015
UPM Biorefining	223	220
UPM Raflatac	7	7
UPM Plywood	13	13
Other operations	1	1
<b>Total</b>	245	241

### Goodwill

EURm	2016	2015
Carrying value, at 1 January	241	230
Translation differences	3	11
<b>Carrying value, at 31 December</b>	245	241



**Other intangible assets**

EURm	INTANGIBLE RIGHTS	SOFTWARE AND OTHER INTANGIBLE ASSETS	TOTAL
<b>2016</b>			
Accumulated costs	523	665	1,189
Accumulated amortisation and impairments	-306	-628	-933
<b>Carrying value, at 31 December</b>	<b>218</b>	<b>38</b>	<b>256</b>
<b>Carrying value, at 1 January</b>	<b>224</b>	<b>53</b>	<b>277</b>
Additions	5	7	12
Disposals	-	-1	-1
Amortisation	-6	-19	-25
Impairment	-	-2	-2
Reclassifications	-4	-	-3
Translation differences	-1	-	-1
<b>Carrying value, at 31 December</b>	<b>218</b>	<b>38</b>	<b>256</b>
Emission rights, net carrying value <sup>1)</sup>			45
<b>Carrying value including emission rights, at 31 December</b>			<b>301</b>
<b>2015</b>			
Accumulated costs	536	669	1,205
Accumulated amortisation and impairments	-312	-616	-928
<b>Carrying value, at 31 December</b>	<b>224</b>	<b>53</b>	<b>277</b>
<b>Carrying value, at 1 January</b>	<b>226</b>	<b>71</b>	<b>297</b>
Additions	4	7	11
Amortisation	-8	-25	-33
Translation differences	2	-	2
<b>Carrying value, at 31 December</b>	<b>224</b>	<b>53</b>	<b>277</b>
Emission rights, net carrying value <sup>1)</sup>			52
<b>Carrying value including emission rights, at 31 December</b>			<b>329</b>

<sup>1)</sup> » Refer Note 2.3 Operating expenses and other operating income, for further information on emission rights.

**Impairment testing**

Impairment tests for goodwill and water rights with indefinite life were carried out in the fourth quarter 2016. The values of water rights were tested based on expected future cash flows of each separate hydropower plant. Water rights of hydropower plants belonging to UPM Energy and reported in intangible rights amounted EUR 189 million at the end of 2016 and 2015.

Goodwill impairment tests were carried out for pulp operations in Finland and Uruguay, belonging to UPM Biorefining business area, UPM Rafflatac business area and UPM Plywood business area.

The 2016 impairment tests did not result in a recognition of any impairment.

The basis for valuation and key assumptions used in goodwill impairment testing are summarised in below table.

CASH GENERATING UNIT	BASIS OF VALUATION	PERIOD OF FORECAST	PRE-TAX DISCOUNT RATE	KEY ASSUMPTIONS
Pulp operations Finland	Value in use	10 years + terminal value	10.92% (2015: 11.02%)	Pulp price, wood costs
Pulp operations Uruguay	Value in use	10 years + terminal value	10.38% (2015: 10.38%)	Pulp price, wood costs
UPM Rafflatac	Value in use	10 years + terminal value	9.94% (2015: 9.94%)	Product prices, cost development
UPM Plywood	Value in use	10 years + terminal value	10.35% (2015: 10.35%)	Product prices, cost development

**Sensitivity analyses**

The sensitivity analyses of goodwill impairment tests indicate that no reasonable change in key assumptions would result in recognition of impairment loss against goodwill. In pulp operations the recoverable amount is most sensitive to pulp sales prices and the cost of wood raw material.

As at 31 December 2016, for pulp operations Finland, a decrease of more than 15.8% in pulp prices would result in recognition of impairment loss against goodwill. The group believes that no reasonable change in wood cost would cause the aggregate carrying amount to exceed the recoverable amount. For pulp operations Uruguay, a decrease of more than 3.2% in pulp prices or an increase of more than 9.2% in wood cost would result in recognition of impairment loss against goodwill. A decrease of more than 5.0% in pulp prices or an increase of more than 14.2% in wood cost would result in a write-down of the entire goodwill.

**Key estimates and judgements**

The group's assessment of the carrying value of goodwill and indefinite life assets requires significant judgement.

While management believes that estimates of future cash flows are reasonable, different assumptions are subject to change as a result of changing economic and operational conditions. Actual cash flows could therefore vary from estimated discounted future cash flows and could result in changes in the recognition of impairment charges in future periods.

**Future cash flows**

The review of recoverable amount for goodwill and indefinite life assets is based on a calculation of value in use, using management projections of future cash flows. The most important assessments and assumptions needed in calculations are forecasts for future growth rates for the business in question, product prices, cost development and the discount rates applied. The group is using ten-year forecasts in calculations as the nature of the group's business is long-term, due to its capital intensity, and is exposed to cyclical changes. In estimates

of product prices and cost development, forecasts prepared by management for the next three years and estimates made for the following seven years are taken into consideration. In addition, consideration is given to the investment decisions made by the group as well as the profitability programmes that the group has implemented and the views of knowledgeable industry experts on the long-term development of demand and prices. In the projection of cash flows UPM uses EBITDA adjusted with cash flows not captured within EBITDA, including working capital movements and capital expenditures.

**Discount rate**

The discount rate is estimated using the weighted average cost of capital (WACC) on the calculation date adjusted for risks specific to the business in question. The adjusted after-tax discount rate is translated to a pre-tax rate for each cash generating unit (CGU) based on the specific tax rate applicable to where the CGU operates.

## § Accounting policies

**Goodwill**

Goodwill arises in connection with business combinations where the consideration transferred exceeds the fair value of the acquired net assets. Goodwill is recognised at cost less accumulated impairment and is an intangible asset with an indefinite useful life. Goodwill is allocated to the cash generating units that are expected to benefit from the synergies from the business combination.

**Intangible rights**

Intangible rights include water rights of hydropower plants, patents, licences, intellectual property and similar rights. Water rights are deemed to have an indefinite useful life as the company has a contractual right to exploit water resources in the energy production

of power plants. The values of water rights are tested annually for impairment based on expected future cash flows of each separate hydropower plant. Other intangible rights are recognised at cost less accumulated depreciation and impairment. Amortisation is calculated using the straight-line method over their estimated useful lives ranging from 5 to 10 years.

**Software and other intangible assets**

Research expenditure is recognised as an expense as incurred. Costs incurred in acquiring software that will contribute to future period financial benefit are capitalised to software and systems. Other intangible assets are recognised at cost less accumulated amortisation and impairment. Amortisation is calculated using the straight-line method over their estimated useful lives ranging from 3 to 5 years.

**Impairment testing**

Goodwill and other intangible assets that are deemed to have an indefinite life are tested at least annually for impairment. For goodwill impairment testing purposes the group identifies its cash-generating units (CGUs), which is the smallest identifiable group of assets that generate cash inflows largely independent of the cash inflows of other assets or other groups of assets. Each CGU is no larger than a business area. The carrying amount for the CGU includes goodwill, non-current assets and working capital. If the balance sheet carrying amount of the CGU unit exceeds its recoverable amount, an impairment loss is recognised. Impairment loss is allocated first to reduce the carrying amount of any goodwill allocated to the unit and then to other assets of the unit. An impairment loss recognised for goodwill is not reversed in a subsequent period.

Other intangible assets with indefinite useful lives are impaired if the recoverable amount of the asset is less than the carrying amount. The carrying amount of the asset is then reduced to the recoverable amount which is the higher of the asset's net selling price and its value in use.

**4.5 Provisions**

EURm	RESTRUCTURING	TERMINATION	ENVIRONMENTAL	EMISSIONS	OTHER	TOTAL
<b>2016</b>						
<b>Provisions at 1 January</b>	47	51	24	14	18	154
Provisions made during the year	16	36	5	9	4	70
Provisions utilised during the year	-12	-30	-1	-10	-4	-58
Unused provisions reversed	-5	-3	-7	-3	-2	-20
<b>Provisions at 31 December</b>	<b>45</b>	<b>54</b>	<b>21</b>	<b>9</b>	<b>16</b>	<b>145</b>
Non-current						90
Current						56
<b>Total</b>						<b>145</b>
<b>2015</b>						
<b>Provisions at 1 January</b>	50	109	26	12	17	214
Provisions made during the year	3	9	-	14	6	32
Provisions utilised during the year	-8	-55	-1	-11	-2	-77
Unused provisions reversed	-4	-6	-1	-1	-1	-13
Companies sold	-	-	-	-	-2	-2
Reclassifications	6	-6	-	-	-	-
<b>Provisions at 31 December</b>	<b>47</b>	<b>51</b>	<b>24</b>	<b>14</b>	<b>18</b>	<b>154</b>
Non-current						92
Current						62
<b>Total</b>						<b>154</b>

UPM has undergone several restructurings in recent years including mill closures and profit improvement programs. Restructuring provisions recognised include various restructuring activities including dismantling costs. Termination provisions include severance payments, unemployment compensations or other arrangements for employees leaving the company. In Finland termination provisions include also unemployment arrangements and disability pensions. Unemployment provisions in Finland are recognised 2–3 years before the granting and settlement of the compensation.

At 31 December 2016, restructuring provisions and termination provisions relate mainly to capacity closures in UPM Paper ENA business area. In 2016, UPM has closed Madison paper mill in the US. Paper machine 3 at UPM Steyrmühl mill in Austria and paper machine 2 at UPM Augsburg mill in Germany closures are planned to take place in 2017. Total provisions made relating to these closures amounted to EUR 53 million in 2016. At 31 December 2015, restructuring provisions and termination provisions related mainly to mill closures of prior years and operational restructuring in Finland and France.

The group recognises provisions for normal environmental remediation costs expected to be incurred in a future period upon a removal of non-current assets and restoring industrial landfills where a legal or constructive obligation exists.

Other provisions are mainly attributable to onerous contracts and will be incurred over a period longer than one year.

Provisions for emissions include liability to cover the obligation to return emission rights. The group possesses emission rights amounting to EUR 45 million (52 million) as intangible assets. » [Refer Note 2.3](#) Operating expenses and other operating income, for further information on emission rights.

## § Accounting policies

A provision is recognised when a present legal or constructive obligation exists as a result of a past event and it is probable that an outflow of resources will be required to settle the obligation and the amount can be reliably estimated. Provisions are split between amounts expected to be settled within 12 months of the balance sheet date (current) and amounts expected to be settled later (non-current).

### Restructuring and termination provisions

A restructuring provisions is recognised when a detailed plan for the implementation of the measures is complete and when the plan has been communicated to those who are affected. Employee termination provisions are recognised when the group has communicated the plan to the employees.

### Environmental provisions

Environmental expenditures that relate to an existing condition caused by past operations that do not contribute to future earnings are expensed. The recognition of environmental provisions is based on current interpretations of environmental laws and regulations. Such provisions are recognised when the group has an obligation to dismantle and remove a facility or an item of plant and to restore the site on which it is located. The amount recognised is the present value of the estimated future expenditure determined in accordance with local conditions and requirements. A corresponding item of property, plant and equipment of an amount equivalent to the provision is also recognised and subsequently depreciated as part of the asset. Provisions do not include any third-party recoveries.

### Emission provisions

Emission obligations are recognised in provisions based on realised emissions. The provision is measured at the carrying amounts of the corresponding emission rights held, which are recognised as intangible assets. In case of deficit in emission rights, the shortage is valued at the market value at the balance sheet date.



## Key estimates and judgements

### Environmental provisions

The estimates used in determining the provisions are based on the expenses incurred for similar activities in the current reporting period taking into account the effect of inflation, cost-base development and discounting. Because actual outflows can differ from estimates due to changes in laws, regulations, public expectations, technology, prices and conditions, and can take place many years in the future, the carrying amounts of provisions are regularly reviewed and adjusted to take into account of any such changes. The discount rate applied is reviewed annually.

The group aims to operate in compliance with regulations related to the treatment of waste water, air emissions and landfill sites. However, unexpected events during production processes and waste treatment could cause material losses and additional costs in the group's operations.

### Legal contingencies

Management judgement is required in measurement and recognition of provisions related to pending litigation. Provisions are recorded when the group has a present legal or constructive obligation as a result of past event, an unfavourable outcome is probable and the amount of loss can be reasonably estimated. Due to inherent uncertain nature of litigation, the actual losses may differ significantly from the originally estimated provision. » [Refer Note 9.2](#) Litigation for details of legal contingencies.

## 4.6 Working capital

The group defines operating working capital as inventories, trade receivables and trade payables which are presented separately below. UPM is focusing on working capital efficiency and targeting a sustainable and permanent reduction in operating working capital.

### Operating working capital

EURm	2016	2015
Inventories	1,346	1,376
Trade receivables	1,360	1,436
Trade payables	-994	-917
Advances received	-19	-20
<b>Total</b>	<b>1,694</b>	<b>1,875</b>

### Inventories

EURm	2016	2015
Raw materials and consumables	625	646
Work in progress	54	54
Finished products and goods	645	642
Advance payments	23	34
<b>Total</b>	<b>1,346</b>	<b>1,376</b>

### Trade and other receivables

EURm	2016	2015
<b>Trade receivables</b>		
Undue	1,211	1,193
Past due up to 30 days	114	159
Past due 31–90 days	17	45
Past due over 90 days	18	39
<b>Total trade receivables</b>	<b>1,360</b>	<b>1,436</b>
<b>Prepayments and accrued income</b>		
Personnel expenses	5	9
Interest income	1	3
Energy and other excise taxes	60	66
Other items	69	56
<b>Total prepayments and accrued income</b>	<b>134</b>	<b>134</b>
<b>Other receivables</b>		
VAT and other indirect taxes receivable	170	131
Other	62	42
<b>Total other receivables</b>	<b>231</b>	<b>173</b>
<b>Total</b>	<b>1,726</b>	<b>1,743</b>



## Operational credit risk

Operational credit risk is defined as the risk where UPM is not able to collect the payments for its receivables. The group has a credit policy in place and the exposure to credit risk is monitored on an ongoing basis. Outstanding trade receivables, days of sales outstanding (DSO) and overdue trade receivables are followed on monthly basis. Potential concentrations of credit risk with respect to trade and other receivables are limited due to the large number and the geographic dispersion of customers. Customer credit limits are established and monitored, and ongoing evaluations of their financial condition is performed. Most of the receivables are covered by trade credit insurances. In certain market areas, including Asia and Northern Africa, measures to reduce credit risks include letters of credit, prepayments and bank guarantees. Maximum exposure to credit risk, without taking into account any credit enhancements, is the carrying amount of trade and other receivables.

UPM does not have significant concentration of customer credit risk. The ten largest customers accounted for approximately 18% (20%) of the trade receivables as at 31 December 2016 – i.e., approximately EUR 239 million (285 million).

In 2016, trade receivables amounting to EUR 10 million (18 million) were impaired and the loss was recorded under other costs and expenses. Impairment is recognised when there is objective evidence that the group is not able to collect the amounts due. There are no indications that the debtors will not meet their payment obligations with regard to trade receivables that are not overdue or impaired at 31 December 2016.

### Trade and other payables

EURm	2016	2015
<b>Accrued expenses and deferred income</b>		
Personnel expenses	212	203
Interest expenses	30	35
Indirect taxes	5	4
Customer rebates and other items	205	188
<b>Total accrued expenses and deferred income</b>	<b>451</b>	<b>430</b>
Advances received	19	20
Trade payables	994	917
Other current liabilities	130	96
<b>Total</b>	<b>1,594</b>	<b>1,463</b>



## Accounting policies

### Inventories

Inventories are stated at the lower of cost and net realisable value. Cost is determined by the method most appropriate to the particular nature of inventory, the first-in, first-out (FIFO) or weighted average cost. The cost of finished goods and work in progress comprises raw materials, direct labour, other direct costs and related production overheads (based on normal operating capacity) but excludes borrowing costs. Net realisable value is the estimated selling price in the ordinary course of business, less the costs of completion and selling expenses. If the net realisable value is lower than cost, a valuation allowance is established for inventory obsolescence.

### Trade receivables

Trade receivables arising from selling goods and services in the normal course of business are recognised initially at fair value and subsequently measured at amortised cost, less a provision for impairment. Provision for impairment is charged to the income statement when there is objective evidence that the group will not be able to collect all amounts due according to the original terms of receivables. In determining the recoverability of trade receivables the group considers any change to the credit quality of trade receivables. Significant financial difficulties of the debtor, probability that the debtor will enter bankruptcy, or default or delinquency in payments more than 90 days overdue are considered indicators that the trade receivable may be irrecoverable. Subsequent recoveries of amounts previously written off are credited to the income statement. The carrying amount of trade receivables approximates to their fair value due to the short-term nature of the receivables.

### Trade payables

Trade payables arise from purchase of inventories, fixed assets and goods and services in the ordinary course of business from UPM's suppliers. Trade and other payables are classified as current liabilities if they are due to be settled within the normal operating cycle of the business or within 12 months from the balance sheet date. Trade payables are recognised initially at fair value and subsequently at amortised cost using the effective interest method. The carrying amount of trade payables approximates to their fair value due to the short-term nature of the payables.

## 5. Capital structure

UPM has a strong cash flow and industry-leading balance sheet that mitigates risks and enables value-enhancing strategic actions.

<b>Net debt</b>	<b>Free cash flow</b>
EUR <b>1,131m</b>	EUR <b>1,424m</b>
(EUR 2,100m)	(EUR 750m)

### 5.1 Capital management

UPM's objective for managing capital comprising of net debt and total equity is to ensure maintenance of flexible capital structure to enable the ability to operate in capital markets and maintain optimal returns to shareholders. The group manages its financing activities, debt portfolio and financial resources via various policies that are designed to ensure optimum financing arrangements minimising simultaneously financial expenses and refinancing risk and optimising liquidity. Borrowing activities are centralised to the parent to the extent possible and cash resources are distributed within the group by the central treasury department.

UPM targets a net debt to EBITDA ratio of approximately 2 times or less.

#### UPM's capital

EURm	2016	2015
Equity attributable to owners of the parent company	8,234	7,942
Non-controlling interest	3	2
<b>Total equity</b>	<b>8,237</b>	<b>7,944</b>
Non-current debt	1,835	2,797
Current debt	585	269
<b>Total debt</b>	<b>2,419</b>	<b>3,066</b>
<b>Total capitalisation</b>	<b>10,657</b>	<b>11,010</b>
Total debt	2,419	3,066
Less: Interest-bearing financial assets	-1,289	-966
<b>Net debt</b>	<b>1,131</b>	<b>2,100</b>
<b>Gearing ratio, % <sup>1)</sup></b>	<b>14</b>	<b>26</b>
<b>Net debt to EBITDA <sup>1)</sup></b>	<b>0.73</b>	<b>1.56</b>

<sup>1)</sup> Refer Note 10.2, Alternative performance measures

### Liquidity and refinancing risk

UPM seeks to maintain adequate liquidity under all circumstances by means of efficient cash management and restricting financial investments to investment types that can readily be converted into cash. Adequate liquidity is maintained by keeping sufficient amount of unused committed credit lines as a reserve.

Refinancing risks are minimised by ensuring a balanced loan portfolio maturing schedule and sufficiently long maturities. The average loan maturity at 31 December 2016 was 5.3 years (5.5 years).

UPM has some financial agreements which have gearing as a financial covenant whereby it should not exceed 110%

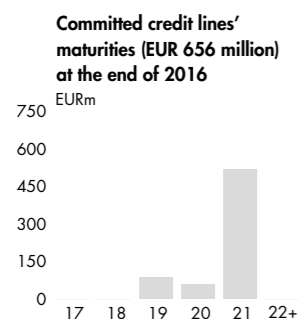
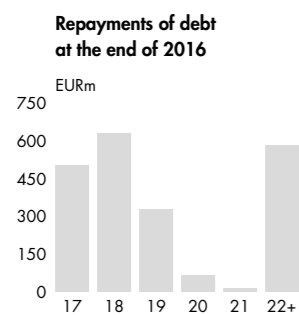
#### Liquidity

EURm	2016	2015
Cash at bank	590	545
Cash equivalents	402	81
Committed credit lines	656	1,025
of which used	-5	-
Used uncommitted credit lines	-26	-103
Long-term loan repayment cash flow	-477	-145
<b>Liquidity</b>	<b>1,140</b>	<b>1,403</b>

Cash and cash equivalents comprise cash in hand, deposits held at call with banks and other short-term highly liquid investments with original maturities of three months or less. Bank overdrafts are included in used uncommitted credit lines and presented within current debt in the balance sheet.

The most important financial programmes in use are:

- Committed:
- Bilateral revolving credit lines.
- Uncommitted:
- Domestic commercial paper programme, EUR 1,000 million.



#### Maturity table of debt at the end of 2016

EURm	2017	2018	2019	2020	2021	2022+	TOTAL
Bonds	292	237	-	-	-	356	885
Loans from financial institutions	21	305	320	16	10	14	685
Pension loans	74	74	-	-	-	-	148
Finance leases	88	7	8	49	5	37	195
Other loans	1	4	1	1	-	173	180
Current loans	26	-	-	-	-	-	26
<b>Principal payments</b>	<b>502</b>	<b>628</b>	<b>328</b>	<b>65</b>	<b>15</b>	<b>581</b>	<b>2,118</b>
<b>Interest payments</b>	<b>88</b>	<b>50</b>	<b>41</b>	<b>36</b>	<b>35</b>	<b>218</b>	<b>468</b>

The difference between the above nominal values and carrying value of total debt arise from fair value adjustments increasing carrying value by EUR 202 million and other non-cash adjustments decreasing carrying value by EUR 18 million.

#### Maturity table of debt at the end of 2015

EURm	2016	2017	2018	2019	2020	2021+	TOTAL
Bonds	-	340	230	-	-	421	991
Loans from financial institutions	37	208	313	453	19	26	1,056
Pension loans	74	74	74	-	-	-	222
Finance leases	32	86	5	6	47	22	198
Other loans	2	2	2	-	1	163	170
Current loans	103	-	-	-	-	-	103
<b>Principal payments</b>	<b>248</b>	<b>710</b>	<b>624</b>	<b>459</b>	<b>67</b>	<b>632</b>	<b>2,740</b>
<b>Interest payments</b>	<b>101</b>	<b>96</b>	<b>56</b>	<b>42</b>	<b>37</b>	<b>271</b>	<b>603</b>

The difference between the above nominal values and carrying value of total debt arise from fair value adjustments increasing carrying value by EUR 256 million and other non-cash adjustments decreasing carrying value by EUR 22 million.

#### Maturity table of derivatives and guarantees at the end of 2016

EURm	2017	2018	2019	2020	2021	2022+	TOTAL
Net settled interest rate swaps							
Net inflow	52	23	14	13	12	66	180
Net outflow	-8	-7	-8	-6	-5	-4	-38
Gross settled derivatives:							
Gross currency swaps							
Total inflow	302	101	9	7	7	226	652
Total outflow	-371	-78	-1	-2	-2	-193	-647
Forward foreign exchange contracts							
Total inflow	369	-	-	-	-	-	369
Total outflow	-368	-	-	-	-	-	-368
Guarantees	2	-	-	-	-	-	2

#### Maturity table of derivatives and guarantees at the end of 2015

EURm	2016	2017	2018	2019	2020	2021+	TOTAL
Net settled interest rate swaps							
Net inflow	54	53	23	11	12	82	235
Net outflow	-7	-7	-5	-6	-2	-	-27
Gross settled derivatives:							
Gross currency swaps							
Total inflow	18	354	101	12	10	325	820
Total outflow	-8	-374	-82	-5	-6	-335	-810
Forward foreign exchange contracts							
Total inflow	671	-	-	-	-	-	671
Total outflow	-673	-	-	-	-	-	-673
Guarantees	4	-	-	-	-	-	4

## 5.2 Net debt

Net debt is defined as the total of current and non-current debt less cash and cash equivalents and interest-bearing current and non-current assets. Net debt totalled EUR 1,131 million at the end of 2016 (2,100 million). Following the strong cash flow during 2016, the group was able to reduce net debt by EUR 969 million.

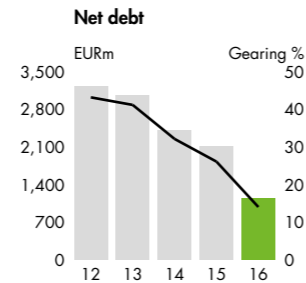
### Net debt

EURm	2016	2015
Bonds	717	1,165
Loans from financial institutions	664	1,013
Pension loans	77	158
Finance leases	106	167
Derivatives	34	71
Other loans	236	223
<b>Non-current debt</b>	<b>1,835</b>	<b>2,797</b>
Repayments of non-current debt	477	144
Derivatives	82	21
Other liabilities	26	104
<b>Current debt</b>	<b>585</b>	<b>269</b>
<b>Total debt</b>	<b>2,419</b>	<b>3,066</b>
Loan receivables	11	10
Derivatives	216	278
Other receivables	32	30
<b>Non-current interest-bearing assets</b>	<b>259</b>	<b>318</b>
Loan receivables	6	5
Derivatives	12	9
Other receivables	19	8
Cash and cash equivalents	992	626
<b>Current interest-bearing assets</b>	<b>1,030</b>	<b>648</b>
<b>Total interest-bearing assets</b>	<b>1,289</b>	<b>966</b>
<b>Net debt</b>	<b>1,131</b>	<b>2,100</b>

### Change in net debt 2016

Reported in financing activities in cash flow statement

EURm	NON-CURRENT LOANS INCL. REPAYMENTS	FINANCE LEASES	CURRENT LOANS	NET DERIVATIVES	OTHER FINANCIAL ASSETS	CASH AND CASH EQUIVALENTS	NET DEBT
<b>Carrying value, at 1 January</b>	-2,672	-198	-104	195	53	626	-2,100
Change in net debt, cash:							
Proceeds from non-current debt	-1	-	-	-	-	-	-1
Payments of non-current debt	533	7	-	-	-	-	540
Change in current liabilities	-	-	77	-	-	-	77
Net cash flows from derivatives	-	-	-	22	-	-	22
Change in other financial assets in operating cash flow	-	-	-	-	13	-	13
Change in other financial assets in investing cash flow	-	-	-	-	2	-	2
Change in cash and cash equivalents	-	-	-	-	-	367	367
	532	7	77	22	15	367	1,020
Change in net debt, non-cash:							
Fair value gains and losses	55	-	-	-105	-	-	-50
Exchange gains and losses	11	-	1	-	-	-1	11
Effective interest rate adjustment	-8	-	-	-	-	-	-8
Other non-cash changes	-	-4	-	-	-	-	-4
	58	-4	1	-105	-	-1	-51
<b>Carrying value, at 31 December</b>	<b>-2,082</b>	<b>-195</b>	<b>-26</b>	<b>112</b>	<b>68</b>	<b>992</b>	<b>-1,131</b>



### Accounting policies

#### Debt

Debt comprising of bonds, bank and pension loans and other loans is recognised initially at fair value, net of transaction costs and subsequently measured at amortised cost using the effective interest method. Any difference between proceeds (net of transaction costs) and the redemption value is recognised in the income statement over the estimated life of the borrowing. UPM classifies debt as non-current unless due for settlement within a year. Most of the debt is hedged in a fair value hedge relationship as described in » [Note 6.1](#) Financial risk management.

### Change in net debt 2015

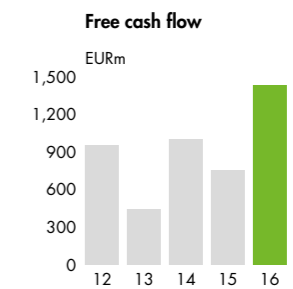
Reported in financing activities in cash flow statement

EURm	NON-CURRENT LOANS INCL. REPAYMENTS	FINANCE LEASES	CURRENT LOANS	NET DERIVATIVES	OTHER FINANCIAL ASSETS	CASH AND CASH EQUIVALENTS	NET DEBT
<b>Carrying value, at 1 January</b>	-2,978	-272	-74	166	57	700	-2,401
Change in net debt, cash:							
Proceeds from non-current debt	-22	-	-	-	-	-	-22
Payments of non-current debt	439	80	-	-	-	-	519
Change in current liabilities	-	-	-22	-	-	-	-22
Net cash flows from derivatives	-	-	-	-43	-	-	-43
Change in other financial assets in operating cash flow	-	-	-	-	-3	-	-3
Change in cash and cash equivalents	-	-	-	-	-	-75	-75
	417	80	-22	-43	-3	-75	354
Change in net debt, non-cash:							
Fair value gains and losses	5	-	-	72	-	-	77
Exchange gains and losses	-105	-1	-8	-	-1	1	-114
Effective interest rate adjustment	-11	-	-	-	-	-	-11
Other non-cash changes	-	-5	-	-	-	-	-5
	-111	-6	-8	72	-1	1	-53
<b>Carrying value, at 31 December</b>	<b>-2,672</b>	<b>-198</b>	<b>-104</b>	<b>195</b>	<b>53</b>	<b>626</b>	<b>-2,100</b>

### Free cash flow

Free cash flow is primarily a liquidity measure. It is an important indicator of UPM's overall operational performance as it reflects the cash generated from operations after investing activities. UPM's free cash flow has enabled payment of dividends as well as repayments of debt reducing net debt significantly.

EURm	2016	2015
Operating cash flow	1,686	1,185
Investing cash flow	-262	-435
<b>Free cash flow</b>	<b>1,424</b>	<b>750</b>
Dividends paid	-400	-373
Other financing cash flow	-19	-20
Change in other financial assets in operating cash flow	13	-3
Change in other financial assets in investing cash flow	2	-
<b>Change in net debt, cash</b>	<b>1,020</b>	<b>354</b>
Change in net debt, non-cash	-51	-53
<b>Decrease in net debt</b>	<b>969</b>	<b>301</b>
Opening net debt	-2,100	-2,401
<b>Closing net debt</b>	<b>-1,131</b>	<b>-2,100</b>



### Bonds

FIXED RATE PERIOD	INTEREST RATE, %	CURRENCY	NOMINAL VALUE ISSUED, MILLION	CARRYING VALUE 2016 EURm	CARRYING VALUE 2015 EURm
1997-2027	7.450	USD	375	471	470
2000-2016	3.550	JPY	10,000	-	95
2002-2017	6.625	GBP	250	293	355
2003-2018	5.500	USD	250	246	245
<b>Value, at 31 December</b>				<b>1,010</b>	<b>1,165</b>
Current portion				292	-
Non-current portion				718	1,165

**Leases**

UPM has a sale and leaseback agreement and three finance lease agreements regarding power plant machinery outstanding at the end of 2016. The group uses the energy generated by these plants for its own production. The group also has a finance lease arrangement over the usage of a waste water treatment plant. In addition, the group leases certain production assets and buildings under long term lease arrangements. In 2016, one new finance lease agreement was made with present value of EUR 2 million.

**Leased assets included in property, plant and equipment**

EURm	2016	2015
Accumulated costs	154	153
Accumulated depreciation and impairments	-59	-46
<b>Carrying value, at 31 December</b>	<b>95</b>	<b>107</b>

The group also leases office, manufacturing and warehouse space through various non-cancellable operating leases. Certain contracts contain renewal options for various periods of time.

**Future minimum lease payments**

EURm	Finance leases		Operating leases	
	2016	2015	2016	2015
Within 1 year	94	37	74	65
Between 1 and 5 years	73	152	189	165
Later than 5 years	40	24	185	190
<b>Total</b>	<b>207</b>	<b>213</b>	<b>448</b>	<b>420</b>
Of which interest	-12	-15	-	-
Present value of future minimum lease payments	195	198	-	-

**Accounting policies****Leases**

Leases of property, plant and equipment where the group, as a lessee, has substantially all the risks and rewards of ownership are classified as finance leases. Finance leases are recognised as assets and liabilities in the balance sheet at the commencement of lease term at the lower of the fair value of the leased property and the present value of the minimum lease payments.

Each lease payment is allocated between the liability and finance charges. The corresponding rental obligations, net of finance charges, are included in other non-current debt. The interest element of the finance cost is charged to the income statement over the lease period so as to produce a constant periodic rate of interest on the remaining balance of the liability for each period. Property, plant and equipment acquired under finance leases are depreciated over the shorter of the asset's useful life and the lease term.

Leases where the lessor retains substantially all the risks and rewards of ownership are classified as operating leases. Payments made as a lessee under operating leases are charged to the income statement on a straight-line basis over the period of the lease.

**5.3 Financial assets and liabilities by category**

Financial assets and liabilities recognised in the balance sheet include cash and cash equivalents, loans and other financial receivables, investments in securities, trade receivables, trade payables, loans and derivatives.

Classification of financial assets into different measurement categories depends on the purpose for which the financial assets were initially acquired and is determined at the acquisition date. Financial assets and liabilities are offset and the net amount reported in the balance sheet when there is a legally enforceable right to offset the recognised amounts and there is an intention to settle on a net basis or realise the asset and settle the liability simultaneously.

**Financial assets and liabilities by category at the end of 2016**

EURm	FAIR VALUE THROUGH PROFIT AND LOSS	AVAILABLE-FOR-SALE FINANCIAL ASSETS	LOANS AND RECEIVABLES	DERIVATIVES USED FOR HEDGING	FINANCIAL LIABILITIES AT AMORTISED COST	TOTAL
Energy shareholdings	-	1,932	-	-	-	1,932
Other non-current financial assets:						
Loans and receivables	-	-	19	-	-	19
Derivatives	18	-	-	218	-	236
						255
Trade and other receivables	-	-	1,726	-	-	1,726
Other current financial assets:						
Loans and receivables	-	-	6	-	-	6
Derivatives	47	-	-	56	-	103
						109
<b>Total financial assets</b>	<b>65</b>	<b>1,932</b>	<b>1,751</b>	<b>274</b>	<b>-</b>	<b>4,022</b>
Non-current debt:						
Loans	-	-	-	-	1,800	1,800
Derivatives	-	-	-	34	-	34
						1,835
Other non-current financial liabilities:						
Other liabilities <sup>1)</sup>	-	-	-	-	94	94
Derivatives	10	-	-	6	-	16
						110
Current debt:						
Loans	-	-	-	-	502	502
Derivatives	82	-	-	-	-	82
						584
Trade and other payables	-	-	-	-	1,594	1,594
Other current financial liabilities:						
Derivatives	20	-	-	96	-	116
						116
<b>Total financial liabilities</b>	<b>112</b>	<b>-</b>	<b>-</b>	<b>136</b>	<b>3,990</b>	<b>4,238</b>

**Financial assets and liabilities by category at the end of 2015**

EURm	FAIR VALUE THROUGH PROFIT AND LOSS	AVAILABLE-FOR-SALE FINANCIAL ASSETS	LOANS AND RECEIVABLES	DERIVATIVES USED FOR HEDGING	FINANCIAL LIABILITIES AT AMORTISED COST	TOTAL
Energy shareholdings	-	2,085	-	-	-	2,085
Other non-current financial assets:						
Loans and receivables	-	-	20	-	-	20
Derivatives	20	-	-	292	-	312
						332
Trade and other receivables	-	-	1,743	-	-	1,743
Other current financial assets:						
Loans and receivables	-	-	5	-	-	5
Derivatives	49	-	-	79	-	128
						133
<b>Total financial assets</b>	<b>69</b>	<b>2,085</b>	<b>1,768</b>	<b>371</b>	<b>-</b>	<b>4,293</b>
Non-current debt:						
Loans	-	-	-	-	2,726	2,726
Derivatives	30	-	-	41	-	71
						2,797
Other non-current financial liabilities:						
Other liabilities <sup>1)</sup>	-	-	-	-	103	103
Derivatives	30	-	-	41	-	71
						174
Current debt:						
Loans	-	-	-	-	248	248
Derivatives	21	-	-	-	-	21
						269
Trade and other payables	-	-	-	-	1,463	1,463
Other current financial liabilities:						
Derivatives	40	-	-	116	-	156
						156
<b>Total financial liabilities</b>	<b>121</b>	<b>-</b>	<b>-</b>	<b>198</b>	<b>4,540</b>	<b>4,859</b>

<sup>1)</sup> Consists mainly of non-current advances received and a put liability that is not estimated to mature within 12 months.

The carrying amounts of financial assets and financial liabilities except for non-current loans approximate their fair value. The fair value of non-current loans amounted to EUR 1,804 million (2,755 million) at the end of 2016. For quoted bonds, the fair values are based on the quoted market value as of 31 December. At the end of 2016, all bonds were quoted. For other non-current borrowings fair

values are estimated using the expected contractual future payments discounted at market interest rates and are categorised within level 2 of the fair value hierarchy.

» **Refer Note 5.2** Net debt, for further information on net debt and bonds.

### Fair value measurement hierarchy for financial assets and liabilities

EURm	2016				2015			
	Level 1	Level 2	Level 3	Total	Level 1	Level 2	Level 3	Total
<b>Financial assets</b>								
Derivatives, non-qualifying hedges	2	63	–	65	6	63	–	69
Derivatives used for hedging	32	241	–	273	88	283	–	371
Energy shareholdings	–	–	1,932	1,932	–	–	2,085	2,085
<b>Total</b>	<b>34</b>	<b>304</b>	<b>1,932</b>	<b>2,270</b>	<b>94</b>	<b>346</b>	<b>2,085</b>	<b>2,525</b>
<b>Financial liabilities</b>								
Derivatives, non-qualifying hedges	19	93	–	112	59	62	–	121
Derivatives used for hedging	42	94	–	136	109	89	–	198
<b>Total</b>	<b>61</b>	<b>187</b>	<b>–</b>	<b>248</b>	<b>168</b>	<b>151</b>	<b>–</b>	<b>319</b>

There have been no transfers between levels in 2016 and 2015.

## § Accounting policies

### Fair value through profit or loss

This category includes derivatives that don't qualify hedge accounting. They are measured at fair value and any gains or losses from subsequent measurement are recognised in the income statement.

### Available-for-sale financial assets

This category includes mainly UPM's energy shareholdings. These assets are measured at fair value through other comprehensive income.

### Loans and receivables

This category comprises loan receivables with fixed or determinable payments that are not quoted in an active market, as well as trade and other receivables. They are included in non-current assets unless they mature within 12 months of the balance sheet date. Loan receivables that have a fixed maturity are measured at amortised cost using the effective interest method. Loan receivables without fixed maturity date are measured at amortised cost. Loan receivables are impaired if the carrying amount is greater than the estimated recoverable amount.

### Derivatives used for hedging

All derivatives are initially and continuously recognised at fair value in the balance sheet. Gains and losses on remeasurement of derivatives used for hedging purposes are recognised in accordance with the accounting principles described in » **Note 6.2** Derivatives and hedge accounting.

### Financial liabilities measured at amortised cost

This category includes debt, trade payables and other financial liabilities. » **Refer Note 5.2** Net debt, for further information.

The different levels of fair value hierarchy used in fair value estimation are defined as follows:

### Fair values under level 1

Quoted prices (unadjusted) traded in active markets for identical assets or liabilities. Derivatives include futures and commodity forwards traded in exchange.

### Fair values under level 2

Observable inputs are used as basis for fair value calculations either directly (prices) or indirectly (derived from prices). If all significant inputs required to fair value an instrument are observable, the instrument is included in level 2. Derivatives, level 2 include OTC derivatives like forward foreign exchange contracts, foreign currency options, interest and currency swaps and commodity swaps.

Specific valuation techniques used to value financial instruments at level 2 include the following methods:

Interest forward rate agreements (FRA) are fair valued based on quoted market rates on the balance sheet date. Forward foreign exchange contracts are fair valued based on the contract forward rates at the balance sheet date. Foreign currency options are fair valued based on quoted market rates and market volatility rates on the balance sheet date by using the Black&Scholes option valuation model. Interest and currency swap instruments are fair valued as present value of the estimated future cash flows based on observable yield curves. Commodity swaps are fair valued based on forward curve quotations received from service providers.

An embedded derivative that is by nature a foreign currency forward contract is valued at market forward exchange rates and is included in level 2. Embedded derivatives are monitored by the group and the fair value changes are reported in other operating income in the income statement.

### Fair values under level 3

Financial assets or liabilities of which fair values are not based on observable market data (that is, unobservable inputs) are classified under level 3. This category include UPM's energy shareholdings and forest assets. Fair valuations are performed at least quarterly by respective business areas or functions. Fair valuations are reviewed by the group finance management and overseen by the Audit Committee. » **Refer Note 4.3** Energy shareholdings and **Note 4.2** Forest assets.

## 5.4 Financial income and expenses

EURm	2016	2015
<b>Exchange rate and fair value gains and losses</b>		
Derivatives, non-qualifying hedges	–47	85
Fair value gains and losses on derivatives designated as fair value hedges	–64	–13
Fair value adjustment of debt attributable to interest rate risk	55	5
Fair value adjustment of firm commitments attributable to foreign exchange rate risk	–	3
Exchange gains and losses on financial liabilities measured at amortised costs	13	–105
Exchange gains and losses on loans and receivables	36	13
Other exchange rate and fair value gains and losses	–	13
	–7	1
<b>Interest and other finance costs, net</b>		
Interest expense on financial liabilities measured at amortised cost	–111	–122
Interest income on derivatives	60	75
Interest income on loans and receivables	4	5
Dividend income from energy shareholdings	2	–
Losses on sale of associates and joint ventures	–4	–
Other financial expenses, net	–	–26
	–49	–68
<b>Total</b>	<b>–56</b>	<b>–67</b>

### Net gains and losses on derivatives included in the operating profit

EURm	2016	2015
Cash flow hedges reclassified from hedging reserve	–38	–107
Cash flow hedges recognised directly in operating profit	–4	6
Non-qualifying hedges	28	–78
<b>Total</b>	<b>–14</b>	<b>–179</b>

### Foreign exchange gains and losses in the income statement excluding non-qualifying hedges

EURm	2016	2015
Sales	9	–100
Other operating income	6	18
Financial income and expenses	3	6
<b>Total</b>	<b>17</b>	<b>–76</b>

## 5.5 Share capital and reserves

The company has one series of shares and each share carries one vote. There are no specific terms related to the shares except for the redemption clause as discussed under » **Shares section** in the Report of the Board of Directors. At 31 December 2016, the number of the company's shares was 533,735,699. The shares do not have any nominal counter value. The shares are included within the book entry system for securities.

### Share capital

	2016	2015
Number of shares (1,000)	533,736	533,736
Share capital, EURm	890	890

### Treasury shares

At 31 December 2016, the company held 230,737 (230,737) of its own shares, 0.04% (0.04%) of the total number of shares.

### Reserves

EURm	2016	2015
Fair value reserve	1,438	1,582
Hedging reserves	–31	–104
Share-based payments reserve	9	8
<b>Total other reserves</b>	<b>1,416</b>	<b>1,486</b>
Reserve for invested non-restricted equity	1,273	1,273
Translation reserve	433	449
<b>Total reserves</b>	<b>3,122</b>	<b>3,208</b>

### Reserve for invested non-restricted equity

Reserve for invested non-restricted equity includes, under the Companies' Act, the exercise value of shareholders' investments in the company unless otherwise decided by the company.

### Translation reserve

This reserve includes the foreign currency differences arising from the translation of foreign operations, and the effective result of transactions that hedge the group's net investments in foreign operations.

### Hedging reserve

This reserve comprises the cumulative net change in the fair value of the effective portion of cash flow hedging instruments related to hedged transactions that have not yet occurred. Amounts are recognised in profit or loss when the associated hedged transactions affect profit or loss or as part of the acquisition cost of property, plant and equipment.

### Fair value reserve

This reserve represents the cumulative net change in the fair value of investments in equity securities comprising mainly of the fair value change of the energy shareholdings. Amounts are recognised in profit or loss if the asset is sold or impaired.

### Share-based payments reserve

The share-based payments reserve is used to recognise the fair value of the share incentive plans, Performance Share Plan and Deferred Bonus Plan, over their vesting period.

## § Accounting policies

Transaction costs directly relating to the issue of new shares are recognised, net of tax, in equity as a reduction in the proceeds. Where any group company purchases the parent company's shares (treasury shares), the consideration paid, including any directly attributable incremental costs (net of tax), is deducted from equity attributable to the owners of the parent company until the shares are cancelled or reissued. Where such shares are subsequently reissued, any consideration received, net of any directly attributable incremental transaction costs and the related income tax effects, is included in equity attributable to the owners of the parent company.

## 6. Risk management

### 6.1 Financial risk management

The objective of financial risk management is to protect the group from unfavourable changes in financial markets and thus help to secure profitability. The objectives and limits for financing activities are defined in the Group Treasury Policy approved by the Board of Directors. In financial risk management various financial instruments are used within the limits specified in the Group Treasury Policy. Only such instruments whose market value and risk profile can be continuously and reliably monitored are used for this purpose.

Financing services are provided to the group entities and financial risk management carried out by the central treasury department, Treasury and Risk Management. The centralisation of treasury functions enables efficient financial risk management, cost-efficiency and efficient cash management.

#### Foreign exchange risk

The group is exposed to foreign exchange risk arising from various currency exposures, primarily with respect to USD, GBP and JPY. Foreign exchange risk arises from contracted and expected commercial future payment flows (transaction exposure), from changes in value of recognised assets and liabilities denominated in foreign currency and from changes in the value of assets and liabilities in foreign subsidiaries (translation exposure). The objective of foreign exchange risk management is to limit the uncertainty created by changes in foreign exchange rates on the future value of cash flows and earnings as well as in the group's balance sheet by hedging foreign exchange risk in forecast cash flows and balance sheet exposures. Changing exchange rates can also have indirect effects, such as change in relative competitiveness between currency regions.

#### Transaction exposure

The group hedges transaction exposure related to highly probable future commercial foreign currency cash flows on a rolling basis over the next 12-month period based on forecasts by the respective business areas. The group's policy is to hedge an average of 50% of its estimated net risk currency cash flow. Some highly probable cash flows have been hedged for longer than 12 months ahead while deviating from the risk neutral hedging level at the same time. At 31 December 2016, 50% (49%) of the forecast 12-month currency flow was hedged.

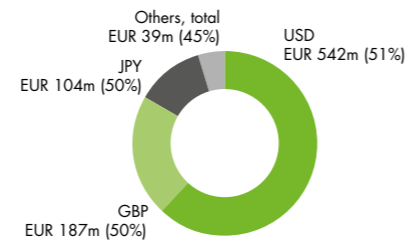
External forwards are designated at group level as hedges of foreign exchange risk of specific future foreign currency sales. Cash flow hedge accounting is applied when possible. If hedge accounting is not possible, fair value changes of the hedging instrument are recognised through profit and loss immediately.

At the end of 2016, UPM's estimated net risk currency flow for the next 12 months was EUR 1,730 million (1,930 million).

#### 12 months net risk currency flow

EURm	2016	2015
USD	1,060	1,010
GBP	370	600
JPY	210	230
Others	90	90

Nominal values of hedging instruments and corresponding hedging ratios, based on 12 months forecasts



#### Translation exposure

The group has several currency denominated assets and liabilities on its balance sheet such as foreign currency bonds, loans and deposits, group internal loans and cash in other currencies than functional currencies. The aim is to hedge this balance sheet exposure fully. The group might, however, within the limits set in the group Treasury Policy have unhedged balance sheet exposures. At 31 December 2016 unhedged balance sheet exposures in net of interest-bearing assets and liabilities amounted to EUR 15 million (11 million). Hedge accounting is not applied and all fair value changes of hedging instruments are recognised through profit and loss immediately.

The group has also accounts receivable and payable balances denominated in foreign currencies. The aim is to hedge the exposure in main currencies. The nominal values of the hedging instruments in net of accounts payable and receivable hedging were EUR 555 million (770 million). Hedge accounting is not applied and all fair value changes of hedging instruments are recognised through profit and loss immediately.

The group has net investments in foreign subsidiaries that are subject to foreign currency translation differences. The exchange rate differences arising from translation of foreign subsidiaries and accumulated as a separate component of equity in the translation reserve relate mainly to USD, CNY and GBP. Currency exposure arising from the net investment in foreign subsidiaries is generally not hedged. However, at 31 December 2016, part of the foreign exchange risk associated with the net investment in Uruguay was hedged and net investment hedge accounting has been applied.

#### Foreign exchange risk sensitivity

The following table illustrates the effect to profit before tax due to recognised balance sheet items in foreign currency and the effect to equity arising mainly from foreign currency forwards used to hedge foreign currency flows.

EURm	Profit before tax		Equity	
	2016	2015	2016	2015
EUR strengthens by 10%				
USD	6	10	52	41
GBP	-1	-	19	28
JPY	-2	-2	10	19
EUR weakens by 10%				
USD	-6	-10	-52	-41
GBP	1	-	-19	-28
JPY	2	2	-10	-19

The following assumptions were made when calculating the sensitivity to changes in the foreign exchange risk:

- Major part of non-derivative financial instruments (such as cash and cash equivalents, trade receivables, debt and trade payables) are either directly denominated in the functional currency or are transferred to the functional currency through the use of derivatives i.e. the balance sheet position is close to zero. Exchange rate fluctuations have therefore minor or no effects on profit or loss.
- The position includes foreign currency forward contracts that are part of the effective cash flow hedge having an effect on equity.
- The position includes also foreign currency forward contracts that are not part of the effective cash flow hedge having an effect on profit.
- The position excludes foreign currency denominated future cash flows and effects of translation exposure and related hedges.

#### Interest rate risk

The interest-bearing liabilities and assets expose the group to interest rate risk, namely repricing and fair value interest rate risk caused by interest rate movements. According to the Group Treasury Policy the interest rate exposure is defined as the difference in interest rate sensitivity between assets and liabilities compared to a benchmark portfolio. The total interest rate exposure is a net debt portfolio which includes all interest bearing assets and liabilities and derivatives that are used to hedge the aforementioned balance sheet items. The policy sets target net debt duration levels within an allowed limit. The group uses interest rate derivatives to change the duration of the net debt. At 31 December 2016 the average duration was 3.1 years (2.2 years).

The table below shows the nominal value of interest rate position exposed to interest rate risk in each significant currency. The position includes all cash balances, interest bearing liabilities and assets and currency derivatives used to hedge these items. The positive/negative position indicates a net liability/asset position by currency and that the group is exposed to repricing and/or fair value interest risk by interest rate movements in that currency.

#### Nominal values of the group's net debt by currency including derivatives

EURbn	2016	2015
EUR	0.9	1.9
USD	0.4	0.5
GBP	-0.1	-0.2
Others	-0.1	-0.1
<b>Total</b>	<b>1.1</b>	<b>2.1</b>

Most of the long-term loans and the related interest rate derivatives meet hedge accounting requirements; both fair value and cash flow hedge accounting is applied.

#### Interest rate risk sensitivity

The following table illustrates the effect to profit before tax mainly as a result of higher/lower interest expense on floating rate debt and the effect to equity as a result of a decrease/increase in the fair value of derivatives designated as cash flow hedges of floating rate debt.

EURm	Profit before tax		Equity	
	2016	2015	2016	2015
Interest rate of net debt 100 basis points higher	-7	-5	-37	-40
Interest rate of net debt 100 basis points lower	7	5	37	40

The following assumptions were made when calculating the sensitivity to changes in interest rates:

- The variation of interest rate is assumed to be 100 basis points parallel shift in applicable interest rate curves.
- In the case of fair value hedges designated for hedging interest rate risk, the changes in the fair values of the hedged items and the hedging instruments attributable to the interest rate movements balance out almost completely in the income statement in the same period. However, the possible ineffectiveness has an effect on the profit of the year.
- Fixed rate debt that is measured at amortised cost and is not designated to fair value hedge relationship is not subject to interest rate risk sensitivity.
- In case of variable to fixed interest rate swaps which are included in cash flow hedge accounting, fair value changes of hedging swaps are booked to equity.
- Floating rate debt that are measured at amortised cost and not designated as hedged items are included in interest rate sensitivity analysis.
- Changes in the market interest rate of interest rate derivatives (interest rate futures, swaps and cross currency swaps) that are not designated as hedging instruments in hedge accounting affect the financial income or expenses (net gains or losses from remeasurement of the financial assets and liabilities to fair value) and are therefore included in the income-related sensitivity analysis.

#### Electricity price risk

UPM is hedging both sales of power production and power purchases consumed at daily business. The group's sensitivity to electricity market price is dependent on the electricity production and consumption levels and the hedging levels.

In the Nordic and Central European market areas the operative risk management is done by entering into electricity derivatives contracts. In addition to hedging, the group is also trading electricity forwards and futures. As well as hedging, proprietary trading risks are monitored on a daily basis. Value-At-Risk levels are set to limit the maximum risk at any given time. Cumulative maximum loss is limited by stop-loss limits.

#### Electricity derivatives price sensitivity

Sensitivity analysis for financial electricity derivatives is based on position at the end of financial year. Sensitivities change over time as the overall hedging and trading positions change. Underlying physical positions are not included in the sensitivity analysis. Sensitivity analysis is calculated separately for the hedge accounted and non-hedge accounted volumes. In the analysis it is assumed that forward quotation in Nasdaq Commodities and EEX would change EUR 5/ MWh throughout the period UPM has derivatives. EUR 5/ MWh price sensitivity is estimated from historical market price movements in Nasdaq and EEX markets.

EURm	EFFECT	2016	2015
+/- EUR 5/MWh in electricity forward quotations			
Effect on profit before tax	+/-	45.1	66.0
Effect on equity	+/-	36.7	28.0

## 6.2 Derivatives and hedge accounting

The group uses financial derivatives to manage currency, interest rate and commodity price risks. » [Refer Note 6.1](#) Financial risk management.

### § Accounting policies

All derivatives are initially and continuously recognised at fair value in the balance sheet. The fair value gain or loss is recognised through the income statement or other comprehensive income depending on whether the derivative is designated as a hedging instrument, and on the nature of the item being hedged. Certain derivatives are designated at inception either hedges of the fair value of a recognised assets or liabilities or a firm commitment (fair value hedge), hedges of highly probable forecasted transactions or cash flow variability in functional currency (cash flow hedge), or hedges of net investments in foreign subsidiaries with other than the EUR as their functional currency (net investment hedge). Derivative fair values on the balance sheet are classified as non-current when the remaining maturity is more than 12 months and as current when the remaining maturity is less than 12 months.

For hedge accounting purposes, UPM documents the relationship between the hedging instruments and hedged items, as well as the risk management objective and strategy for undertaking various hedge transactions at the inception date. This process includes linking all derivatives designated as hedges to specific assets and liabilities or to specific firm commitments or forecast transactions. The group also documents its assessment, both at the hedge inception and on an on-going basis, as to whether the hedge is highly effective in offsetting changes in fair values or cash flows of the hedged items.

Certain derivatives, while considered to be economical hedges for UPM's financial risk management purposes, do not qualify for hedge accounting. Such derivatives are recognised at fair value through the income statement in other operating income or under financial items.

#### Cash flow hedges

The effective portion of changes in the fair value of derivatives that are designated and qualify as cash flow hedges is recognised in other comprehensive income. Amounts deferred in equity are transferred to the income statement and classified as income or expense in the same period as that in which the hedged item affects the income statement (for example, when the forecast external sale to the group that is hedged takes place). The period when the hedging reserve is released to sales after each derivative has matured is approximately one month. The gain or loss relating to the effective portion of interest rate swaps hedging variable rate borrowings is recognised in the income statement within finance costs. When the forecasted transaction that is hedged results in the recognition of a fixed asset, gains and losses previously deferred in equity are transferred from equity and included in the initial measurement of the acquisition cost and depreciated over the useful lives of the assets.

When a hedging instrument expires or is sold, or when a hedge no longer meets hedge accounting criteria, any cumulative gain or loss existing in equity at that time remains in equity and is recognised when the committed or forecasted transaction is ultimately recognised in the income statement. However, if a forecasted transaction is no longer expected to occur, the cumulative gain or loss that was reported in equity is immediately recognised to the income statement.

#### Hedges of net investments in foreign subsidiaries

The fair value changes of forward exchange contracts used in hedging net investments that reflect the change in spot exchange rates are recognised in other comprehensive income within translation reserve. Any gain or loss relating to the interest portion of forward exchange contracts is recognised immediately in the income statement under financial items. Gains and losses accumulated in equity are included in the income statement when the foreign operation is partially disposed of or sold.

#### Fair value hedges

The group applies fair value hedge accounting for hedging fixed interest risk on debt. Changes in the fair value of derivatives that are designated and qualify as fair value hedges and that are highly effective both prospectively and retrospectively are recorded in the income statement under financial items, along with any changes in the fair value of the hedged asset or liabilities that are attributable to the hedged risk. The carrying amounts of hedged items and the fair values of hedging instruments are included in interest-bearing assets or liabilities. Derivatives that are designated and qualify as fair value hedges mature at the same time as hedged items. If the hedge no longer meets the criteria for hedge accounting, the adjustment to the carrying amount of a hedged item for which the effective interest method is used is amortised to profit or loss over the expected period to maturity.

### ! Financial counterparty risk

The financial instruments the group has agreed with banks and financial institutions contain an element of risk of the counterparties being unable to meet their obligations. According to the Group Treasury Policy derivative instruments and investments of cash funds may be made only with counterparties meeting certain creditworthiness criteria. The group minimises counterparty risk also by using a number of major banks and financial institutions. Creditworthiness of counterparties is constantly monitored by Treasury and Risk Management.

### Net fair values of derivatives

EURm	2016			2015		
	Positive fair values	Negative fair values	Net fair values	Positive fair values	Negative fair values	Net fair values
<b>Foreign exchange risk</b>						
Forward foreign exchange contracts						
Cash flow hedges	35	-41	-6	17	-27	-10
Net investment hedge	4	-19	-15	-	-21	-21
Non-qualifying hedges	10	-14	-4	14	-14	-
Currency options						
Non-qualifying hedges	-	-	-	-	-	-
Cross currency swaps						
Non-qualifying hedges	23	-77	-54	15	-46	-31
<b>Derivatives hedging foreign exchange risk</b>	<b>72</b>	<b>-151</b>	<b>-79</b>	<b>46</b>	<b>-108</b>	<b>-62</b>
<b>Interest rate risk</b>						
Interest rate swaps						
Cash flow hedges	-	-34	-34	-	-18	-18
Fair value hedges	138	-	138	181	-	181
Non-qualifying hedges	27	-2	25	31	-2	29
Cross currency swaps						
Cash flow hedges	-	-	-	-	-23	-23
Fair value hedges	64	-	64	85	-	85
Non-qualifying hedges	1	-	1	1	-	1
<b>Derivatives hedging interest risk</b>	<b>230</b>	<b>-36</b>	<b>194</b>	<b>298</b>	<b>-43</b>	<b>255</b>
<b>Commodity risk</b>						
Commodity contracts						
Cash flow hedges	32	-42	-10	88	-109	-21
Non-qualifying hedges	5	-19	-14	8	-59	-51
<b>Derivatives hedging commodity risk</b>	<b>37</b>	<b>-61</b>	<b>-24</b>	<b>96</b>	<b>-168</b>	<b>-72</b>
<b>Total</b>	<b>339</b>	<b>-248</b>	<b>91</b>	<b>440</b>	<b>-319</b>	<b>121</b>

No derivatives are subject to offsetting in the group's financial statements. All derivatives are under ISDA or similar master netting agreement.

### Notional amounts of derivatives

EURm	2016	2015
Interest rate forward contracts	1,480	1,906
Interest rate swaps	2,019	2,131
Forward foreign exchange contracts	2,645	2,949
Currency options	36	73
Cross currency swaps	557	669
Commodity contracts	429	400

Cash collaterals pledged for derivative contracts totalled EUR 19 million of which EUR 17 million relate to commodity contracts and EUR 2 million to interest rate forward contracts.

### Net fair values of derivatives calculated by counterparty

EURm	POSITIVE FAIR VALUES	NEGATIVE FAIR VALUES	NET FAIR VALUES
<b>2016</b>	238	-148	90
<b>2015</b>	250	-129	121



## 7. Income tax

### 7.1 Tax on profit for the year

#### Income tax

In 2016, tax on profit for the year amounted to EUR 200 million (159 million). The effective tax rate was 18.5% (14.8%). In 2016 and 2015, the effective tax rate was affected by the income not subject to tax from subsidiaries operating in tax free zone.

In 2015, other items include tax benefit of EUR 9 million related to capital gain from sale of forestland in UK in 2014 where tax authorities accepted treatment of gain as tax-exempt in 2015.

#### Income tax

EURm	2016	2015
Current tax expense	172	95
Change in deferred taxes	28	64
<b>Total</b>	<b>200</b>	<b>159</b>

#### Tax rate reconciliation

EURm	2016	2015
<b>Profit before tax</b>	<b>1,080</b>	<b>1,075</b>
Computed tax at Finnish statutory rate 20%	216	215
Difference between Finnish and foreign rates	21	16
Non-deductible expenses and tax-exempt income	-23	-63
Tax loss with no tax benefit	8	11
Results of associates	-1	-1
Change in tax legislation	-4	-1
Change in recoverability of deferred tax assets	-1	-
Utilisation of previously unrecognised tax losses	-11	-6
Other items	-5	-12
<b>Total income taxes</b>	<b>200</b>	<b>159</b>
<b>Effective tax rate, %</b>	<b>18.5%</b>	<b>14.8%</b>

### § Accounting policies

The group's income tax expense comprises current tax and deferred tax. Current tax is calculated on the taxable result for the period based on the tax rules prevailing in the countries where the group operates and includes tax adjustments for previous periods and withholding taxes deducted at source on intra-group transactions. Tax expense is recognised in the income statement, unless it relates to items that have been recognised in equity or as part of other comprehensive income. In these instances, the related tax expense is also recognised in equity or other comprehensive income, respectively.

### 🔑 Key estimates and judgements

The group is subject to income taxes in numerous jurisdictions and the calculation of the group's tax expense and income tax liabilities involves a degree of estimation and judgement. Tax balances reflect a current understanding and interpretation of existing tax laws. Management periodically evaluates positions taken in tax returns with respect of situations in which applicable tax regulation is subject to interpretation and adjusts income tax liabilities where appropriate.

### 7.2 Deferred tax

EURm	2016	2015
<b>Deferred tax assets</b>		
Intangible assets and property, plant and equipment	107	132
Inventories	42	37
Retirement benefit liabilities and provisions	145	129
Other temporary differences	23	50
Tax losses and tax credits carried forward	226	241
Offset against liabilities	-97	-123
<b>Total</b>	<b>446</b>	<b>466</b>
<b>Deferred tax liabilities</b>		
Intangible assets and property, plant and equipment	-206	-217
Forest assets	-261	-256
Retirement benefit assets	-14	-19
Other temporary differences	-73	-87
Offset against assets	97	123
<b>Total</b>	<b>-457</b>	<b>-456</b>
<b>Net deferred tax assets (liabilities)</b>	<b>-11</b>	<b>10</b>

Deferred income tax assets and liabilities are offset when there is a legally enforceable right to offset current tax assets against current tax liabilities and when the deferred income taxes relate to the same fiscal authority.

#### Movements in deferred tax assets and liabilities

EURm	2016	2015
<b>Carrying value, at 1 January</b>	<b>10</b>	<b>104</b>
Charged to income statement	-28	-64
Charged to other comprehensive income	9	-29
Exchange rate adjustments	-2	-1
<b>Net deferred tax assets (liabilities)</b>	<b>-11</b>	<b>10</b>

#### Tax charge to other comprehensive income

EURm	2016			2015		
	Before tax	Tax	After tax	Before tax	Tax	After tax
Actuarial gains and losses on defined benefit plans	-120	23	-97	153	-40	113
Energy shareholdings	-148	3	-144	-424	19	-405
Translation differences	-14	-	-14	221	-	221
Cash flow hedges	91	-18	73	30	-6	24
Net investment hedges	-1	-	-1	-26	-2	-28
<b>Total</b>	<b>-193</b>	<b>9</b>	<b>-184</b>	<b>-46</b>	<b>-29</b>	<b>-75</b>

### 🔑 Key estimates and judgements

#### Recognised deferred tax assets

The recognition of deferred tax assets requires management judgement as to whether it is probable that such balances will be utilised and/or reversed in the foreseeable future. At 31 December 2016, net operating loss carry-forwards for which the group has recognised a deferred tax asset amounted to EUR 744 million (797 million), of which EUR 622 million (665 million) was attributable to German subsidiaries. In Germany net operating loss carry-forwards do not expire. In other countries net operating loss carry-forwards expire at various dates and in varying amounts. Based on profit forecasts, it is probable that there will be sufficient future taxable profits available against which the tax losses can be utilised.

The assumptions regarding future realisation of tax benefits, and therefore the recognition of deferred tax assets, may change due to future operating performance of the group, as well as other factors, some of which are outside of the control of the group.

#### Unrecognised deferred tax assets and liabilities

The net operating loss carry-forwards for which no deferred tax is recognised due to uncertainty of their utilisation amounted to EUR 842 million (648 million) in 2016. These net operating loss carry-forwards are mainly attributable to certain German and French subsidiaries. In addition, the group has not recognised deferred tax assets on loss carry-forwards amounting to EUR 450 (423 million) which relate to closed Miramichi paper mill in Canada.

The group has not recognised deferred tax liability in respect of undistributed earnings of non-Finnish subsidiaries to the extent that it is probable that the temporary differences will not reverse in the foreseeable future.

In addition, the group has not recognised deferred tax liability for the undistributed earnings of Finnish subsidiaries and associates as such earnings can be distributed without any tax consequences.

### § Accounting policies

Deferred tax is calculated based on temporary differences between the carrying amounts and the taxable values of assets and liabilities and for tax loss carry-forwards to the extent that it is probable that these can be utilized against future taxable profits.

Deferred income tax is determined using tax rates (and laws) that have been enacted or substantially enacted by the balance sheet date and are expected to apply when the related deferred income tax asset is realised or the deferred income tax liability is settled.

Deferred income tax is provided on temporary differences arising on investments in subsidiaries, associates and joint ventures, except where the timing of the reversal of the temporary difference is controlled by the group and it is probable that the temporary difference will not reverse in the foreseeable future. Deferred tax assets and liabilities are recognised net where there is a legal right to set-off and an intention to settle on a net basis.

## 8. Group structure

### 8.1 Business acquisitions and disposals

In 2016 and 2015, no business acquisitions were made.

In 2016, UPM had no business disposals. In 2015, UPM sold 100% of its shares of Tilhill Forestry Ltd to BSW Timber Ltd in the UK. The following table summarises the amount of assets and liabilities related to disposal.

EURm	2015
Inventories	5
Trade and other receivables	24
Cash and cash equivalents	3
Provisions	-2
Trade and other payables	-22
Net assets	8
Gain on disposals	3
<b>Total consideration</b>	<b>11</b>
Settled in cash and cash equivalents	11
Cash in subsidiaries disposed	-3
<b>Net cash arising from disposals</b>	<b>8</b>

### § Accounting policies

UPM consolidates acquired entities at the acquisition date which is when it gains control using the acquisition method. Consideration transferred is determined as the fair value of the assets transferred, the liabilities incurred and equity instruments issued including the fair value of a contingent consideration. Acquisition related transaction costs are expensed as incurred. Identifiable assets acquired and liabilities and contingent liabilities assumed are measured initially at their fair values at the acquisition date. The group measures any non-controlling interest in the acquiree either at fair value or at the non-controlling interest's proportionate share of the acquiree's net assets.

The excess of the consideration transferred, the amount of any non-controlling interest in the acquiree and the acquisition-date fair value of any previous equity interest in the acquiree over the fair value of the identifiable net assets of the subsidiary acquired is recorded as goodwill.

## 8.2 Principal subsidiaries and joint operations

SUBSIDIARIES	COUNTRY OF INCORPORATION	HOLDING % 2016	HOLDING % 2015
Blandin Paper Company	US	100.00	100.00
Forestal Oriental S.A.	UY	100.00	100.00
Gebrüder Lang GmbH Papierfabrik	DE	100.00	100.00
LLC UPM Ukraine	UA	100.00	100.00
MD Papier GmbH	DE	100.00	100.00
Nordland Papier GmbH	DE	100.00	100.00
NorService GmbH	DE	100.00	100.00
nortrans Speditionsgesellschaft mbH	DE	100.00	100.00
OOO UPM-Kymmene	RU	100.00	100.00
OOO UPM-Kymmene Chudovo	RU	100.00	100.00
PT UPM Raflatac Indonesia	ID	100.00	100.00
Rhein Papier GmbH	DE	100.00	100.00
Steyrer Mühl Sägewerksgesellschaft m.b.H. Nfg KG	AT	100.00	100.00
UPM (China) Co., Ltd	CN	100.00	100.00
UPM (Vietnam) Ltd	VN	100.00	100.00
UPM AS	EE	100.00	100.00
UPM Asia Pacific Pte. Ltd	SG	100.00	100.00
UPM Energy Oy	FI	100.00	–
UPM France S.A.S.	FR	100.00	100.00
UPM GmbH	DE	100.00	100.00
UPM Manufatura e Comércio de Produtos Florestais Ltda	BR	100.00	100.00
UPM Paper ENA Oy	FI	100.00	–
UPM Plywood Oy <sup>1)</sup>	FI	100.00	100.00
UPM Pulp Sales Oy	FI	100.00	100.00
UPM Raflatac (China) Co., Ltd	CN	100.00	100.00
UPM Raflatac (S) Pte Ltd	SG	100.00	100.00
UPM Raflatac Co., Ltd	TH	100.00	100.00
UPM Raflatac Iberica S.A.	ES	100.00	100.00
UPM Raflatac Inc.	US	100.00	100.00
UPM Raflatac Mexico S.A. de C.V.	MX	100.00	100.00
UPM Raflatac NZ Limited	NZ	100.00	100.00
UPM Raflatac Oy	FI	100.00	100.00
UPM Raflatac Pty Ltd	AU	100.00	100.00
UPM Raflatac s.r.l.	AR	100.00	100.00
UPM Raflatac Sdn. Bhd.	MY	100.00	100.00
UPM Raflatac South Africa (Pty) Ltd	ZA	100.00	100.00
UPM Raflatac Sp.z.o.o.	PL	100.00	100.00
UPM S.A.	UY	91.00	91.00
UPM Sales GmbH	DE	100.00	100.00
UPM Sales Oy	FI	100.00	100.00
UPM Silvesta Oy	FI	100.00	100.00
UPM Specialty Papers Oy <sup>1)</sup>	FI	100.00	–
UPM Sähkösiirto Oy	FI	100.00	100.00
UPM-Kymmene (UK) Ltd	GB	100.00	100.00
UPM-Kymmene AB	SE	100.00	100.00
UPM-Kymmene Austria GmbH	AT	100.00	100.00
UPM-Kymmene B.V.	NL	100.00	100.00
UPM-Kymmene Inc.	US	100.00	100.00
UPM-Kymmene India Private Limited	IN	100.00	100.00
UPM-Kymmene Japan K.K.	JP	100.00	100.00
UPM-Kymmene Kağıt Ürünleri Sanayi ve Ticaret Ltd. Sti.	TR	99.99	99.99
UPM-Kymmene Otepää AS	EE	100.00	100.00
UPM-Kymmene S.A.	ES	100.00	100.00
UPM-Kymmene Seven Seas Oy	FI	100.00	100.00
UPM-Kymmene S.r.l.	IT	100.00	100.00
Werla Insurance Company Ltd	MT	100.00	100.00

<sup>1)</sup> UPM-Kymmene Wood Oy's legal company name has changed to UPM Plywood Oy and UPM Paper Asia Oy's legal company name has changed to UPM Specialty Papers Oy as of 1 February 2017.

The table includes subsidiaries with sales exceeding EUR 2 million in 2016.

JOINT OPERATIONS	COUNTRY OF INCORPORATION	HOLDING % 2016	HOLDING % 2015
Oy Alholmens Kraft Ab (Pohjolan Voima Oy, G series)	FI	27.88	27.88
EEVG Entsorgungs- und Energieverwertungsgesellschaft m.b.H.	AT	50.00	50.00
Järvi-Suomen Voima Oy	FI	50.00	50.00
Kainuun Voima Oy	FI	50.00	50.00
Kaukaan Voima Oy (Pohjolan Voima Oy, G9 series)	FI	54.00	54.00
Kymin Voima Oy (Pohjolan Voima Oy, G2 series)	FI	76.00	76.00
Madison Paper Industries	US	50.00	50.00
Rauman Biovoima Oy (Pohjolan Voima Oy, G4 series)	FI	71.95	71.95

In 2016, UPM changed its corporate structure in Finland to better match its current business structure. Three new subsidiaries were established in Finland: UPM Energy Oy, UPM Paper Asia Oy and UPM Paper ENA Oy. The personnel and assets of UPM Energy, UPM Specialty Papers and UPM Paper ENA (Europe & North America) in Finland were transferred to the new companies on 1 July 2016. UPM Raflatac and UPM Plywood already operated in their own subsidiaries in Finland. Assets and personnel of UPM Biorefining continued to remain part of UPM-Kymmene Corporation.

## 8.3 Related party transactions

### The Board of Directors and the Group Executive Team

There have not been any material transactions between UPM and its members of the Board of Directors or the Group Executive Team (key management personnel) or persons closely associated with these members or organisations in which these individuals have control or significant influence. There are no loans granted to any members of the Board of Directors or the Group Executive Team at 31 December 2016 and 2015.

For information concerning shares held by members of the Board of Directors and members of the Group Executive Team, as well as remuneration to members of the Board of Directors and the Group Executive Team are disclosed in » [Note 3.2](#). Key management personnel.

### Associates and joint ventures

In Finland, the group organises its producer's responsibility of recovered paper collection through Paperinkeräys Oy. Austria Papier Recycling GmbH purchases recovered paper in Austria and L.C.I s.r.l. in Italy. ASD Altpapier Sortierung Dachau GmbH is a German recovered paper sorting company. The purchases from those four companies represented approximately 79% (81%) of total recovered paper purchase amount from associates and joint ventures.

Transactions with associates and joint ventures are presented in the table below. The group has no individually material associates or joint ventures.

EURm	2016	2015
Dividends received	3	1
Sales	–	1
Purchases of raw materials and services	90	89
Loan receivables	9	9
Trade and other receivables	1	1
Trade and other payables	3	1

### Subsidiaries and joint operations

» [Refer Note 8.2](#) Principal subsidiaries and joint operations.

### Pension Funds

In Finland, group has the pension foundation, Kymin Eläkesäätiö, which is a separate legal entity. Pensions for about 10% of the group's Finnish employees are arranged through the foundation. In 2016, the contributions paid by UPM to the Foundation amounted to EUR 10 million (10 million). The Foundation manages and invests the contributions paid to the plan. The fair value of the Foundation's assets at 31 December 2016 was EUR 347 million (357 million), of which 48% was in the form of equity instruments, 41% in the form of debt instruments and 11% was invested in property and money market.

In the UK, the single UPM Pension Scheme operates under a Trust which is independent from the group. The Trust consists of various defined benefit sections, all of which are closed to future accrual and one common defined contribution section which is open to all UPM employees in the UK. The group made contributions of EUR 5 million (28 million) to the defined benefit sections of the Scheme in 2016. The fair value of the UK defined benefit fund assets at 31 December 2016 was EUR 426 million (409 million), of which 55% was invested in equity instruments, 28% in debt instruments, 9% in property and money market and 8% in other investments.

## 8.4 Assets held for sale

Assets classified as held for sale at the end of 2016 relate to hydro power assets located at the mill site in Madison Paper Industries in the US amounting to EUR 8 million. At the end of 2015, there were no assets classified as held for sale.



### Accounting policies

Non-current assets (or disposal groups) are classified as assets held for sale and stated at the lower of carrying amount and fair value less costs to sell, if UPM will recover their carrying amount through a sale transaction which is considered highly probable. Non-current assets classified as held for sale, or included within a disposal group that is classified as held for sale, are not depreciated after the classification.

## 9. Unrecognised items

### 9.1 Commitments and contingencies

In the normal course of business, UPM enters into various agreements providing financial or performance assurance to third parties. The maximum amounts of future payments for which UPM is liable is disclosed in the table below under "Other commitments". Property under mortgages given as collateral for own commitments include property, plant and equipment, industrial estates and forest land.

EURm	2016	2015
On own behalf		
Mortgages	151	220
On behalf of others		
Guarantees	2	4
Other own commitments		
Operating leases, due within 12 months	74	65
Operating leases, due after 12 months	374	355
Other commitments	154	180
<b>Total</b>	<b>755</b>	<b>824</b>

In June 2013, UPM announced that it was participating in the share issue from Pohjolan Voima Oy to finance the Olkiluoto 3 nuclear power plant project. UPM's commitment of the issue is EUR 119 million, of which EUR 93 million has been paid during the previous years. The remaining part of the share issue will be implemented in the coming years based on the financing needs of the project.

### 9.2 Litigation

#### Group companies

In 2011, Metsähallitus (a Finnish state enterprise, which administers state-owned land) filed a claim for damages against UPM and two other Finnish forest companies. The claim relates to the Finnish Market Court decision of 3 December 2009 whereby the defendants were deemed to have breached competition rules in the Finnish roundwood market. In addition to Metsähallitus, individuals and companies, as well as municipalities and parishes, have filed claims relating to the Market Court decision. The capital amount of all of the claims after the District Court rejected some claims and after certain claimants waived their claims totals currently EUR 185 million in the aggregate jointly and severally against UPM and two other companies; alternatively and individually against UPM, this represents EUR 32 million in the aggregate. In addition to the claims on capital amounts, the claimants are also requesting compensation relating to value added tax and interests. UPM considers all the claims unfounded in their entirety. No provision has been made in UPM's accounts for any of these claims. On 22 June 2016 the District Court rendered a judgment whereby it rejected the damages claim of Metsähallitus against UPM, and the other two Finnish forest companies. The District Court ordered Metsähallitus to pay UPM compensation for legal expenses. The capital amount of Metsähallitus' claim was in total EUR 159 million, of which EUR 23 million was based on agreements between Metsähallitus and UPM. Metsähallitus has appealed the District Court judgment to the Court of Appeal.

In 2012, UPM commenced arbitration proceedings against Metsäliitto Cooperative and Metsä Board Corporation due to their breaches of UPM's tag-along right under the shareholders' agreement concerning Metsä Fibre Oy in connection with the sale of shares in Metsä Fibre to Itochu Corporation. UPM claimed jointly from Metsäliitto and Metsä Board a capital amount of EUR 58.5 million. Metsäliitto and Metsä Board had sold a 24.9% holding in Metsä Fibre to Itochu Corporation for EUR 472 million. In connection with the transaction with Itochu, Metsäliitto had exercised a call option to purchase UPM's remaining 11% shareholding in Metsä Fibre for

EUR 150 million. The arbitral tribunal rendered its final decision (arbitral award) in February 2014 and ordered Metsäliitto and Metsä Board to pay UPM the capital amount of EUR 58.5 million and penalty interest and compensate UPM for its legal fees. As a result, UPM recorded an income of EUR 67 million as item affecting comparability in Q1 2014. In May 2014 Metsäliitto and Metsä Board commenced litigation proceedings in the Helsinki District Court challenging the arbitral award and requesting the District Court to set aside the arbitral award or to declare it null and void. In June 2015 the District Court rejected the actions by Metsäliitto and Metsä Board and following an appeal the Helsinki Court of Appeal rejected the actions by Metsäliitto and Metsä Board in October 2016. Metsäliitto and Metsä Board have filed a request for leave of appeal with the Supreme Court.

#### Other shareholdings

In Finland, UPM is participating in a project to construct a new nuclear power plant unit Olkiluoto 3 EPR (OL3 EPR) through its shareholdings in Pohjolan Voima Oy. Pohjolan Voima Oy is a majority shareholder of Teollisuuden Voima Oyj (TVO), holding 58.5% of its shares. UPM's indirect share of OL3 is approximately 31%. Originally the commercial electricity production of the OL3 plant unit was scheduled to start in April 2009. The completion of the project, however, has been delayed. In September 2014 TVO announced that it had received additional information about the schedule for the OL3 EPR project from the Supplier consortium companies (AREVA GmbH, AREVA NP SAS and Siemens AG), which is constructing OL3 EPR as a fixed-price turnkey project. According to this information, the start of regular electricity production of the plant unit would take place in late 2018.

In December 2008 the Supplier initiated the International Chamber of Commerce (ICC) arbitration proceedings and submitted a claim concerning the delay at the OL3 EPR project and related costs. According to TVO, the Supplier's monetary claim, as updated in February 2016, is in total approximately EUR 3.52 billion. The sum is based on the Supplier's updated analysis of events occurred through September 2014, with certain claims quantified to December 31, 2014. The sum includes penalty interest (calculated to June 30, 2016) and payments allegedly delayed by TVO under the plant contract amounting to a combined total of approximately EUR 1.45 billion, as well as approximately EUR 135 million in alleged loss of profit.

According to TVO, the quantification estimate of its costs and losses related to its claim in the arbitration proceedings is approximately EUR 2.6 billion until the end of 2018, which is the estimated start of the regular electricity production of OL3 EPR according to the schedule submitted by the Supplier. TVO's current estimate was submitted to the tribunal in the arbitration proceedings in July 2015.

According to TVO, TVO received a final and binding partial award in the arbitration proceeding in which the tribunal addressed the early period of the project (time schedule, licensing and licensability, and system design). This comprises many of the facts and matters that TVO relies upon in its main claims against the Supplier, as well as certain key matters that the Supplier relies upon in its claims against TVO. In doing so, the partial award has finally resolved the great majority of these facts and matters in favor of TVO, and conversely has rejected the great majority of the Supplier's contentions in this regard. The partial award does not take a position on the claimed monetary amounts. The arbitration proceeding is still going on with further partial awards to come before the final award where the tribunal will declare the liabilities of the parties to pay compensation.

TVO considers its claims to be well-founded and has considered and found the claims of the Supplier to be without merit. According to TVO the partial award provides material confirmation for this position.

The Supplier consortium companies are jointly and severally liable for the plant contract obligations. No receivables or provisions have been recorded by TVO on the basis of claims presented in the arbitration proceedings.

According to TVO, Areva Group announced in 2016 a restructuring of its business. The restructuring plan involves a transfer of the operations of Areva NP, excluding the OL3 EPR project and resources necessary for its completion, to a new company which is to be sold to a consortium led by EDF. According to Areva's announcement, the consummation of the restructuring is expected to take place during the second half of 2017. The implementation of the restructuring plan is subject to decisions and clearances. TVO requires that the restructuring ensures that the OL3 EPR project will be completed within the current schedule and that all obligations under the plant contract are fulfilled. TVO has sought to obtain more detailed information from Areva Group on its announced restructuring

and its impacts on the OL3 EPR project with a view to securing the assurances that all the necessary financial and other resources, particularly in relation to the EPR technology capabilities, will be allocated for the completion and long-term operation of OL3 EPR and that the Supplier Areva-Siemens will meet all their contractual obligations.

### 9.3 Events after the balance sheet date

The group's management is not aware of any significant events occurring after 31 December 2016.

## 10. Other notes

### 10.1 New standards and amendments – forthcoming requirements

As at 31 December 2016, the following standards and amendments relevant to group had been issued but were not mandatory for annual reporting periods ending 31 December 2016.

STANDARD	NATURE OF CHANGE AND IMPACT	GROUP ADOPTION DATE
IFRS 15 Revenues from contracts with customers	IFRS 15 deals with revenue recognition and establishes principles for reporting useful information to users of financial statements about the nature, amount, timing and uncertainty of revenue and cash flows arising from an entity's contracts with customers. Revenue is recognised when a customer obtains control of a good or service and thus has the ability to direct the use and obtain the benefits from the good or service. The standard replaces IAS 18 Revenue and IAS 11 Construction contracts and related Interpretations. Based on UPM's assessment made, the group does not expect significant changes in the measurement of revenue and timing of recognition. However, IFRS 15 will significantly increase the volume of the revenue related disclosures, particularly in annual financial statements. The group plans to adopt IFRS 15 retrospectively with the cumulative effect of initially applying IFRS 15 recognised at the date of initial application 1 January 2018. The group will start implementation phase in 2017.	1 January 2018
IFRS 9 Financial Instruments	IFRS 9 includes requirements for classification, measurement and recognition of financial assets and financial liabilities. IFRS 9 establishes three primary measurement categories for financial assets: amortised cost, fair value through other comprehensive income and fair value through profit or loss. The basis of classification depends on the entity's business model and the contractual cash flow characteristics of the financial asset. The group does not expect material impact from the new classification and measurement rules on the group's financial statements. For equity investments currently classified as available-for-sale presentation of changes in fair value in other comprehensive income is available also in new standard. However, change in fair value is required to remain in other comprehensive income. The new impairment model requires the recognition of impairment provisions based on expected credit losses. The new model presented in IFRS 9 will most likely not cause a major increase in credit loss allowances as it is similar with group current principles. IFRS 9 relaxes the requirements for hedge effectiveness by removing the bright line of 80-125 % and retrospective tests for assessing hedge effectiveness. It requires an economic relationship between the hedged item and hedging instrument and for the hedged ratio to be the same as the one management actually use for risk management purposes. The group is currently assessing whether more hedge relationships might be eligible for hedge accounting. The group does not intend to adopt IFRS 9 before its mandatory date.	1 January 2018
IFRS 16 Leases	IFRS 16 sets out the principles for the recognition, measurement, presentation and disclosure of leases. It will result in almost all leases being recognised on the balance sheet, as the distinction between operating and finance leases is removed. Under the new standard, an asset (the right to use the leased item) and a financial liability to pay rentals are recognised. The only exceptions are short-term and low-value leases. The group has started an assessment phase in 2016 to determine the impact of new standard to group financial statements. At this stage, the group does not intend to adopt the standard before its effective date 1 January 2019.	1 January 2019
Amendment to IFRS 2 Share-based Payment	Amendment to IFRS 2 clarifies the classification and measurement of share-based payment transactions. The group will make an assessment of possible impact during 2017. The amendments are to be applied prospectively.	1 January 2018

## 10.2 Alternative performance measures

UPM presents certain performance measures of historical performance, financial position and cash flows, which in accordance with the "Alternative Performance Measures" guidance issued by the European Securities and Markets Authority (ESMA) are not accounting measures defined or specified in IFRS and are therefore considered as alternative performance measures. These alternative performance measures are described below:

ALTERNATIVE PERFORMANCE MEASURE	DEFINITION
Operating profit	Profit before income tax expense, finance expenses and finance income and net gains on sale of energy shareholdings as presented on the face of the IFRS income statement.
Comparable EBIT	Operating profit adjusted for items affecting comparability.
Comparable EBITDA	Operating profit before depreciation, amortisation and impairments, change in fair value of forest assets and wood harvested, share of results of associates and joint ventures and items affecting comparability.
Comparable profit before tax	Profit before income tax expense excluding items affecting comparability.
Comparable profit for the period	Profit for the period excluding items affecting comparability and their tax impact.
Comparable EPS, EUR	Earnings per share calculated in accordance with IFRS excluding items affecting comparability and their tax impact.
Net debt	Total of current and non-current debt less cash and cash equivalents and interest-bearing current and non-current financial assets.
Items affecting comparability	Certain non-operational or non-cash valuation transactions with significant income statement impact are considered as items affecting comparability, if they arise from asset impairments, restructuring measures, asset sales, fair value changes of forest assets resulting from changes in valuation parameters or estimates or changes in legislation or legal proceedings. In addition, the changes in fair value of unrealised cash flow and commodity hedges are classified as items affecting comparability. Numerical threshold for items to be considered as significant in UPM's business areas UPM Biorefining, UPM Specialty Papers and UPM Paper ENA is determined as one cent (EUR 0.01) after tax per share or more. In other business areas, the impact is considered to be significant if the item exceeds EUR 1 million before tax.
Free cash flow	Cash generated from operations after cash used for investing activities.
Return on equity (ROE), %	Profit for the period as a percentage of average equity.
Comparable ROE, %	Return on equity (ROE) excluding items affecting comparability.
Return on capital employed (ROCE), %	Profit before taxes, interest expenses and other financial expenses as a percentage of average capital employed.
Comparable ROCE, %	Return on capital employed (ROCE) excluding items affecting comparability.
Capital employed	Group total equity and total debt.
Business area's comparable ROCE, %	Business area's operating profit adjusted for items affecting comparability as a percentage of business area's average capital employed.
Business area's capital employed	Business area's operating assets less its operating liabilities. Operating assets include goodwill, other intangible assets, property, plant and equipment, forest assets, energy shareholdings, investments in associates and joint-ventures, inventories and trade receivables. Operating liabilities include trade payables and advances received.
Capital expenditure	Capitalised investments in property, plant and equipment, intangible assets including goodwill arising from business combinations, energy shareholdings and other shares, associates and joint ventures.
Capital expenditure excluding acquisitions and shares	Capital expenditure excluding investments in shares and participations.
Operating cash flow per share, EUR	Operating cash flow divided by adjusted average number of shares during the period excluding treasury shares.
Gearing ratio, %	Net debt as a percentage of total equity
Net debt to EBITDA	Net debt divided by EBITDA
Equity to assets ratio, %	Equity expressed as a percentage of total assets less advances received.

### Reconciliation of key figures to IFRS

EURm, OR AS INDICATED	Q4/16	Q3/16	Q2/16	Q1/16	Q4/15	Q3/15	Q2/15	Q1/15	Q1-Q4/16	Q1-Q4/15
<b>Items affecting comparability</b>										
Impairment charges	-24	-	1	-12	-	-1	1	-	-35	-
Restructuring charges	-31	-	-	-18	-2	4	-6	-1	-48	-5
Change in fair value of unrealised cash flow and commodity hedges	2	3	-3	25	-22	2	8	-6	27	-18
Capital gains and losses on sale of non-current assets	2	47	-	-	-	3	3	-	49	6
Fair value changes of forest assets resulting from changes in estimates	-	-	-	-	-	265	-	-	-	265
Other non-operational items	-	-	-	-	-3	-	-19	-	-	-22
<b>Total items affecting comparability in operating profit</b>	<b>-51</b>	<b>50</b>	<b>-2</b>	<b>-4</b>	<b>-27</b>	<b>273</b>	<b>-13</b>	<b>-7</b>	<b>-7</b>	<b>226</b>
<b>Total items affecting comparability in financial items</b>	<b>-</b>	<b>-2</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-2</b>	<b>-</b>
Changes in tax rates	4	-	-	-	-	-	-	-	4	-
Taxes relating to items affecting comparability	14	-14	-	6	5	-54	3	2	7	-44
Items affecting comparability in taxes	18	-14	-	6	5	-54	3	2	11	-44
<b>Items affecting comparability, total</b>	<b>-33</b>	<b>34</b>	<b>-2</b>	<b>2</b>	<b>-22</b>	<b>219</b>	<b>-10</b>	<b>-5</b>	<b>1</b>	<b>182</b>
<b>Comparable EBITDA</b>										
Operating profit	232	364	262	277	220	513	206	203	1,135	1,142
Depreciation, amortisation and impairment charges excluding items affecting comparability	120	118	134	138	132	131	130	131	510	524
Change in fair value of forest assets and wood harvested excluding items affecting comparability	-53	-7	-11	-16	-16	-24	-31	-16	-88	-87
Share of results of associates and joint ventures	-1	-2	-2	-	-	-2	-1	-	-5	-3
Items affecting comparability in operating profit	51	-50	2	4	27	-273	13	7	7	-226
<b>Comparable EBITDA</b>	<b>349</b>	<b>423</b>	<b>385</b>	<b>403</b>	<b>363</b>	<b>345</b>	<b>317</b>	<b>325</b>	<b>1,560</b>	<b>1,350</b>
% of sales	14.1	17.3	15.8	16.5	14.1	13.6	12.4	13.1	15.9	13.3
<b>Comparable EBIT</b>										
Operating profit	232	364	262	277	220	513	206	203	1,135	1,142
Items affecting comparability in operating profit	51	-50	2	4	27	-273	13	7	7	-226
<b>Comparable EBIT</b>	<b>283</b>	<b>314</b>	<b>264</b>	<b>281</b>	<b>247</b>	<b>240</b>	<b>219</b>	<b>210</b>	<b>1,143</b>	<b>916</b>
% of sales	11.4	12.8	10.8	11.5	9.6	9.5	8.6	8.4	11.6	9.0
<b>Comparable profit before tax</b>										
Profit before tax	231	336	250	263	214	498	182	181	1,080	1,075
Items affecting comparability in operating profit	51	-50	2	4	27	-273	13	7	7	-226
Items affecting comparability in financial items	-	2	-	-	-	-	-	-	2	-
<b>Comparable profit before tax</b>	<b>282</b>	<b>288</b>	<b>252</b>	<b>267</b>	<b>241</b>	<b>225</b>	<b>195</b>	<b>188</b>	<b>1,089</b>	<b>849</b>
<b>Comparable ROCE, %</b>										
Comparable profit before tax	282	288	252	267	241	225	195	188	1,089	849
Interest expenses and other financial expenses	17	13	15	10	13	12	20	12	55	57
Capital employed, average	10,560	10,433	11,701	11,005	11,079	11,080	11,059	11,025	10,833	10,977
<b>Comparable ROCE, %</b>	<b>11.4</b>	<b>11.5</b>	<b>10.0</b>	<b>10.1</b>	<b>9.2</b>	<b>8.6</b>	<b>7.8</b>	<b>7.3</b>	<b>10.6</b>	<b>8.3</b>
<b>Comparable profit for the period</b>										
Profit for the period	187	268	198	227	193	408	160	155	880	916
Items affecting comparability, total	33	-34	2	-2	22	-219	10	5	-1	-182
<b>Comparable profit for the period</b>	<b>220</b>	<b>234</b>	<b>200</b>	<b>225</b>	<b>215</b>	<b>189</b>	<b>170</b>	<b>160</b>	<b>879</b>	<b>734</b>
<b>Comparable EPS, EUR</b>										
Comparable profit for the period	220	234	200	225	215	189	170	160	879	734
Profit attributable to non-controlling interest	-	-	-1	-	-	-	-	-	-1	-
Average number of shares basic (1,000)	533,505	533,505	533,505	533,505	533,505	533,505	533,505	533,505	533,505	533,505
<b>Comparable EPS, EUR</b>	<b>0.41</b>	<b>0.44</b>	<b>0.37</b>	<b>0.42</b>	<b>0.41</b>	<b>0.35</b>	<b>0.32</b>	<b>0.30</b>	<b>1.65</b>	<b>1.38</b>
<b>Comparable ROE, %</b>										
Comparable profit for the period	220	234	200	225	215	189	170	160	879	734
Profit attributable to non-controlling interest	-	-	-1	-	-	-	-	-	-1	-
Total equity, average	8,054	7,767	7,819	7,959	7,944	7,788	7,718	7,642	8,091	7,712
<b>Comparable ROE, %</b>	<b>10.9</b>	<b>12.1</b>	<b>10.2</b>	<b>11.3</b>	<b>10.8</b>	<b>9.7</b>	<b>8.8</b>	<b>8.4</b>	<b>10.9</b>	<b>9.5</b>

Quarterly key figures are unaudited

# Parent company accounts

(Finnish Accounting Standards, FAS)

## Income statement

EURm	NOTE	2016	2015
<b>Sales</b>	1	2,811	3,298
Change in inventories of finished goods and work in progress		-	2
Production for own use		3	4
Other operating income	2	152	169
Materials and services	3	-1,901	-2,056
Personnel expenses	4	-343	-445
Depreciation, amortisation and impairment charges	5	-172	-220
Other operating expenses	6	-178	-268
<b>Operating profit</b>		373	484
Financial income and expenses	7	6	168
<b>Profit before closing entries and tax</b>		379	652
Closing entries	8	-42	-46
Income taxes	9	-81	-61
<b>Profit for the period</b>		255	545

## Balance sheet

EURm	NOTE	2016	2015
<b>ASSETS</b>			
Intangible assets	10	35	187
Tangible assets	11	1,766	2,262
Holdings in group companies	12	4,365	3,984
Holdings in participating interest companies	12	5	93
Other shares and holdings	12	4	614
Receivables from group companies	12	255	723
Receivables from participating interest companies	12	5	6
Other non-current receivables	12	7	7
<b>Non-current assets</b>		6,443	7,876
Inventories	13	174	314
Trade receivables	14	26	135
Receivables from group companies	14	1,901	868
Receivables from participating interest companies	14	12	11
Other current receivables	14	102	203
Cash and cash equivalents		908	477
<b>Current assets</b>		3,122	2,008
<b>Assets</b>		9,565	9,884

EURm	NOTE	2016	2015
<b>EQUITY AND LIABILITIES</b>			
Share capital	15	890	890
Revaluation reserve	15	206	427
Reserve for invested non-restricted equity	15	1,273	1,273
Retained earnings	15	1,860	1,714
Profit for the period		255	545
<b>Equity</b>		4,483	4,849
<b>Accumulated depreciation difference</b>		455	608
<b>Provisions</b>	16	170	60
Bonds	17	593	991
Loans from financial institutions	17	568	911
Pension loans	17	68	135
Other non-current liabilities	17	170	161
<b>Non-current liabilities</b>		1,399	2,198
Bonds	18	292	-
Loans from financial institutions	18	3	13
Pension loans	18	68	68
Trade payables	18	211	300
Payables to group companies	18	2,217	1,489
Payables to participating interest companies	18	1	3
Other current liabilities	18	266	296
<b>Current liabilities</b>		3,058	2,169
<b>Liabilities</b>		4,456	4,367
<b>Equity and liabilities</b>		9,565	9,884

**Cash flow statement**

EURm	2016	2015
<b>Cash flow from operating activities</b>		
Profit before closing entries and tax	379	652
Financial income and expenses	-6	-168
Adjustments to operating profit <sup>1)</sup>	42	66
Change in working capital <sup>2)</sup>	-219	108
Interest received	24	12
Interest paid	-52	-60
Dividends received	81	182
Other financial items	9	-25
Income taxes paid	-17	-90
<b>Operating cash flow</b>	<b>241</b>	<b>677</b>
<b>Cash flow from investing activities</b>		
Investments in tangible and intangible assets	-137	-180
Acquisition of shareholdings	-	-69
Proceeds from sale of intangible and tangible assets	130	135
Proceeds from disposal of shareholdings	4	818
Change in other non-current receivables	408	-56
<b>Investing cash flow</b>	<b>405</b>	<b>648</b>
<b>Cash flow from financing activities</b>		
Payments of non-current liabilities	-505	-386
Change in current liabilities	693	-614
Dividends paid	-400	-373
Group contributions, net	-2	61
<b>Financing cash flow</b>	<b>-214</b>	<b>-1,312</b>
<b>Change in cash and cash equivalents</b>	<b>431</b>	<b>13</b>
Cash and cash equivalents at the beginning of period	477	464
Change in cash and cash equivalents	431	13
<b>Cash and cash equivalents at the end of period</b>	<b>908</b>	<b>477</b>

<sup>1)</sup> Adjustments to operating profit

EURm	2016	2015
Depreciation, amortisation and impairment charges	172	220
Capital gains on sale of non-current assets, net	-124	-146
Change in provisions	-7	-8
<b>Total</b>	<b>42</b>	<b>66</b>

<sup>2)</sup> Change in working capital

EURm	2016	2015
Inventories	21	30
Current receivables	-361	27
Current non-interest-bearing liabilities	121	51
<b>Total</b>	<b>-219</b>	<b>108</b>

**Notes to the parent company financial statements****§ Accounting policies**

The financial statements of the parent company are prepared in accordance with Finnish Accounting Standards, FAS.

The main differences in accounting policies of the group and the parent company relate to the measurement of forest assets and financial derivatives and recognition of defined benefit obligations and deferred income taxes.

The financial statements are presented in millions of euros and rounded and therefore the sum of individual figures might deviate from the presented total figure.

**1. Sales****Sales by business area**

EURm	2016	2015
UPM Biorefining	1,560	1,555
UPM Energy	135	376
UPM Specialty Papers	240	488
UPM Paper ENA	668	1,490
Other operations and eliminations	208	-611
<b>Total</b>	<b>2,811</b>	<b>3,298</b>

**Sales by destination**

EURm	2016	2015
Finland	2,697	685
Other EU countries	27	2,330
Other countries	87	283
<b>Total</b>	<b>2,811</b>	<b>3,298</b>

**2. Other operating income**

EURm	2016	2015
Gains on sale of non-current assets	133	148
Rental income	15	16
Other	4	5
<b>Total</b>	<b>152</b>	<b>169</b>

**3. Materials and services**

EURm	2016	2015
Raw materials and consumables	1,888	1,992
Change in inventories	9	26
Delivery costs and other external charges	4	38
<b>Total</b>	<b>1,901</b>	<b>2,056</b>

**4. Personnel expenses****Salaries, fees and other personnel expenses**

EURm	2016	2015
Salaries and fees to the President and CEO, and members of the Board of Directors <sup>1)</sup>	6	4
Other salaries and fees	273	359
Pension costs	47	64
Other indirect employee costs	17	18
<b>Total</b>	<b>343</b>	<b>445</b>

<sup>1)</sup> Refer Note 3.2 Key management personnel.

**Personnel**

EURm	2016	2015
<b>Total on average</b>	<b>4,277</b>	<b>5,747</b>

**5. Depreciation, amortisation and impairment charges**

EURm	2016	2015
Intangible rights	3	2
Other intangible assets	19	24
Buildings	26	33
Machinery and equipment	119	155
Other tangible assets	6	6
<b>Total</b>	<b>172</b>	<b>220</b>

**6. Other operating expenses**

EURm	2016	2015
Rents and lease expenses	17	24
Losses on sale of non-current assets	4	1
Maintenance expenses	99	135
Other operating expenses <sup>1)</sup>	58	108
<b>Total</b>	<b>178</b>	<b>268</b>

<sup>1)</sup> The research and development costs in operating expenses were EUR 24 million (27 million) and auditor's fee EUR 0.8 million (0.8 million).

## 7. Financial income and expenses

EURm	2016	2015
<b>Income on non-current assets</b>		
Dividend income from group companies	80	182
Dividend income from other companies	1	–
Interest income from group companies	3	6
	84	188
<b>Other interest and financial income</b>		
Other interest income from group companies	19	3
Other financial income from group companies	35	29
Other financial income from other companies	13	–
	68	32
<b>Value adjustments</b>	–6	105
<b>Interest and other financial expenses</b>		
Interest expenses to group companies	–22	–34
Interest expenses to other companies	–29	–26
Other financial expenses to other companies	–90	–97
	–141	–157
<b>Total</b>	6	168

## 8. Closing entries

EURm	2016	2015
Change in accumulated depreciation difference	11	44
Group contributions received	–1	–4
Group contributions granted	32	6
Losses from mergers	1	–
<b>Total</b>	42	46

## 10. Intangible assets

EURm	INTANGIBLE RIGHTS	OTHER INTANGIBLE ASSETS	ADVANCE PAYMENTS	TOTAL
<b>2016</b>				
Accumulated costs	13	282	5	300
Accumulated amortisation and impairments	–8	–257	–	–265
<b>Carrying value, at 31 December</b>	5	25	5	35
<b>Carrying value, at 1 January</b>	5	178	4	187
Additions	6	4	3	13
Disposals	–3	–141	–	–144
Amortisation	–3	–17	–	–19
Impairment	–	–2	–	–2
Reclassifications	–	2	–2	–
<b>Carrying value, at 31 December</b>	5	25	5	35
<b>2015</b>				
Accumulated costs	19	523	4	546
Accumulated amortisation and impairments	–14	–345	–	–359
<b>Carrying value, at 31 December</b>	5	178	4	187
<b>Carrying value, at 1 January</b>	5	198	3	206
Additions	7	4	3	14
Disposals	–5	–1	–1	–7
Amortisation	–2	–24	–	–26
Reclassifications	–	1	–1	–
<b>Carrying value, at 31 December</b>	5	178	4	187

## 9. Income taxes

EURm	2016	2015
Tax expense for the period	82	61
Tax expense for the previous periods	–1	–
<b>Total</b>	81	61

### Deferred tax assets and liabilities <sup>1)</sup>

EURm	2016	2015
<b>Deferred tax assets</b>		
Provisions	34	12
Share-based payments	3	2
Other temporary differences	–	1
<b>Total</b>	37	15
<b>Deferred tax liabilities</b>		
Accumulated depreciation difference	–91	–122
Revaluations of the land areas	–73	–117
<b>Total</b>	–164	–239

<sup>1)</sup> The parent company has not recognised deferred tax assets and liabilities in the balance sheet. Deferred tax assets and liabilities were calculated based on temporary differences between the carrying and taxable values of assets and liabilities.

## 11. Tangible assets

EURm	LAND AND WATER AREAS	BUILDINGS	MACHINERY AND EQUIPMENT	OTHER TANGIBLE ASSETS	ADVANCE PAYMENTS AND CONSTRUCTION IN PROGRESS	TOTAL
<b>2016</b>						
Accumulated costs	449	604	2,026	138	36	3,254
Accumulated depreciation and impairments	–	–345	–1,396	–112	–	–1,852
Revaluations	364	–	–	–	–	364
<b>Carrying value, at 31 December</b>	813	259	630	27	36	1,766
<b>Carrying value, at 1 January</b>	891	443	868	37	23	2,262
Additions	8	25	117	2	61	213
Disposals	–29	–186	–270	–8	–7	–499
Depreciations	–	–27	–120	–6	–	–152
Impairment	–	–	1	–	–	1
Reclassifications	–	3	35	2	–41	–
Changes in revaluations	–57	–	–	–	–	–57
<b>Carrying value, at 31 December</b>	813	259	630	27	36	1,766
<b>2015</b>						
Accumulated costs	470	1,242	5,027	198	23	6,960
Accumulated depreciation and impairments	–	–799	–4,159	–161	–	–5,119
Revaluations	421	–	–	–	–	421
<b>Carrying value, at 31 December</b>	891	443	868	37	23	2,262
<b>Carrying value, at 1 January</b>	934	441	720	38	209	2,342
Additions	8	12	64	3	78	165
Disposals	–15	–	–	–	–	–15
Depreciations	–	–33	–155	–6	–	–194
Reclassifications	–	23	239	2	–264	–
Changes in revaluations	–36	–	–	–	–	–36
<b>Carrying value, at 31 December</b>	891	443	868	37	23	2,262

## 12. Other non-current assets

EURm	HOLDINGS IN GROUP COMPANIES	HOLDINGS IN PARTICIPATING INTEREST COMPANIES	OTHER SHARES AND HOLDINGS	RECEIVABLES FROM GROUP COMPANIES	RECEIVABLES FROM PARTICIPATING INTEREST COMPANIES	OTHER NON-CURRENT RECEIVABLES	TOTAL
<b>2016</b>							
Accumulated costs	5,780	5	4	255	5	7	6,056
Accumulated value adjustments	–1,414	–	–	–	–	–	–1,414
<b>Carrying value, at 31 December</b>	4,365	5	4	255	5	7	4,642
<b>Carrying value, at 1 January</b>	3,984	93	614	723	6	7	5,427
Additions	829	1	–	3	–	–	832
Disposals	–442	–88	–446	–470	–1	–	–1,448
Changes in revaluations	–	–	–164	–	–	–	–164
Value adjustments <sup>1)</sup>	–5	–	–1	–	–	–	–6
<b>Carrying value, at 31 December</b>	4,365	5	4	255	5	7	4,642
<b>2015</b>							
Accumulated costs	5,393	93	450	723	6	7	6,672
Accumulated value adjustments	–1,409	–	–	–	–	–	–1,409
Revaluations	–	–	164	–	–	–	164
<b>Carrying value, at 31 December</b>	3,984	93	614	723	6	7	5,427
<b>Carrying value, at 1 January</b>	4,648	99	582	666	6	30	6,031
Additions	37	–	32	69	–	–	138
Disposals	–806	–6	–	–12	–	–21	–845
Reclassifications	–	–	–	–	–	–2	–2
Value adjustments	105	–	–	–	–	–	105
<b>Carrying value, at 31 December</b>	3,984	93	614	723	6	7	5,427

<sup>1)</sup> Value adjustments are recognised under financial items.

### 13. Inventories

EURm	2016	2015
Raw materials and consumables	132	203
Finished products and goods	22	80
Advance payments	19	31
<b>Carrying value, at 31 December</b>	<b>174</b>	<b>314</b>

### 14. Current receivables

EURm	TOTAL	RECEIVABLES FROM PARTICIPATING COMPANIES	
		RECEIVABLES FROM GROUP COMPANIES	RECEIVABLES FROM PARTICIPATING INTEREST COMPANIES
<b>2016</b>			
Trade receivables	437	400	11
Loan receivables <sup>1)</sup>	1,495	1,495	–
Prepayments and accrued income	66	–	–
Other current receivables	42	5	–
<b>Carrying value, at 31 December</b>	<b>2,040</b>	<b>1,901</b>	<b>12</b>
<b>2015</b>			
Trade receivables	228	83	10
Loan receivables	783	783	–
Prepayments and accrued income	124	2	1
Other current receivables	82	–	–
<b>Carrying value, at 31 December</b>	<b>1,217</b>	<b>868</b>	<b>11</b>

<sup>1)</sup> There were no loans granted to the company's President and CEO and members of the Board of Directors at 31 December 2016 and 2015.

EURm	2016	2015
<b>Prepayments and accrued income</b>		
Energy taxes	21	38
Personnel expenses	2	4
Interest income	33	39
Derivative financial instruments	7	4
Income taxes	–	37
Other items	4	2
<b>Carrying value, at 31 December</b>	<b>66</b>	<b>124</b>

### 15. Equity

EURm	SHARE CAPITAL	REVALUATION RESERVE	RESERVE FOR INVESTED NON-RESTRICTED EQUITY	RETAINED EARNINGS	TOTAL SHAREHOLDER'S EQUITY
<b>Carrying value, at 1 January 2016</b>	890	427	1,273	2,259	4,849
Profit for period	–	–	–	255	255
Dividend distribution	–	–	–	–400	–400
Changes in revaluations	–	–221	–	–	–221
<b>Carrying value, at 31 December 2016</b>	<b>890</b>	<b>206</b>	<b>1,273</b>	<b>2,115</b>	<b>4,483</b>
<b>Carrying value, at 1 January 2015</b>	890	463	1,273	2,088	4,714
Profit for period	–	–	–	545	545
Dividend distribution	–	–	–	–373	–373
Changes in revaluations	–	–36	–	–	–36
Other changes	–	–	–	–1	–1
<b>Carrying value, at 31 December 2015</b>	<b>890</b>	<b>427</b>	<b>1,273</b>	<b>2,259</b>	<b>4,849</b>

EURm	2016	2015
<b>Distributable funds</b>		
Reserve for invested non-restricted equity	1,273	1,273
Retained earnings from previous years	1,860	1,715
Profit for the period	255	545
<b>Total distributable funds at 31 December</b>	<b>3,388</b>	<b>3,533</b>

### 16. Provisions

EURm	RESTRUCTURING	TERMINATION	ENVIRONMENTAL	OTHER <sup>1)</sup>	TOTAL
<b>Provisions at 1 January 2016</b>	15	13	12	20	60
Provisions made during the year	–	1	–	154	155
Provisions utilised during the year	–2	–2	–	–3	–7
Unused provisions reversed	–	–	–	–1	–2
Changes due to restructurings	–10	–6	–2	–17	–35
<b>Carrying value, at 31 December 2016</b>	<b>3</b>	<b>5</b>	<b>9</b>	<b>153</b>	<b>170</b>
<b>Provisions at 1 January 2015</b>	17	17	13	21	68
Provisions made during the year	–	3	–	3	6
Provisions utilised during the year	–2	–6	–1	–3	–12
Unused provisions reversed	–	–1	–	–1	–2
<b>Carrying value, at 31 December 2015</b>	<b>15</b>	<b>13</b>	<b>12</b>	<b>20</b>	<b>60</b>

<sup>1)</sup> Other provisions are attributable to onerous contracts and fair value losses of financial derivatives. At the end of 2016 the fair value loss in other provisions of EUR 11 million was attributable to one group internal cross currency swap with nominal value of EUR 104 million and maturity in 2027. Changes in provisions are recognised in in personnel or other operating expenses, in sales, materials or financial items.

### 17. Non-current liabilities

EURm	2016	2015
Bonds	593	991
Loans from financial institutions	568	911
Pension loans	68	135
Other non-current liabilities	170	161
<b>Carrying value, at 31 December</b>	<b>1,399</b>	<b>2,198</b>

#### Maturity in 2022 or later (in 2021 or later)

EURm	2016	2015
Bonds	356	421
Other non-current liabilities	170	160
<b>Total</b>	<b>526</b>	<b>581</b>

#### Bonds

FIXED RATE PERIOD	INTEREST RATE, %	CURRENCY	NOMINAL VALUE ISSUED, MILLION	CARRYING VALUE, 2016 EURm	CARRYING VALUE, 2015 EURm
1997–2027	7.450	USD	375	356	344
2000–2016	3.550	JPY	10,000	–	76
2002–2017	6.625	GBP	250	292	341
2003–2018	5.500	USD	250	237	230
<b>Carrying value, at 31 December</b>				<b>885</b>	<b>991</b>
Current portion				292	–
<b>Non-current portion</b>				<b>593</b>	<b>991</b>



## 18. Current liabilities

EURm	TOTAL	PAYABLES TO GROUP COMPANIES	PAYABLES TO PARTICIPATING INTEREST COMPANIES
<b>2016</b>			
Bonds	292	–	–
Loans from financial institutions	3	–	–
Pension loans	68	–	–
Trade payables	252	40	1
Accruals and deferred income	233	16	–
Other current liabilities	2,210	2,161	–
<b>Carrying value, at 31 December</b>	<b>3,058</b>	<b>2,217</b>	<b>1</b>
<b>2015</b>			
Loans from financial institutions	13	–	–
Pension loans	68	–	–
Advances received	1	–	–
Trade payables	353	51	2
Accruals and deferred income	260	20	–
Other current liabilities	1,474	1,418	1
<b>Carrying value, at 31 December</b>	<b>2,169</b>	<b>1,489</b>	<b>3</b>

EURm	2016	2015
<b>Accruals and deferred income</b>		
Personnel expenses	78	116
Interest expenses	32	36
Derivative financial instruments	120	97
Customer rebates	–	8
Income taxes	1	–
Other items	1	3
<b>Carrying value, at 31 December</b>	<b>233</b>	<b>260</b>

## 19. Commitments

EURm	2016	2015
Mortgages <sup>1)</sup>		
As security against own debt	138	220
As security against group companies' debt	13	–
Guarantees		
Guarantees for loans on behalf of Group companies	57	159
Other guarantees on behalf of Group companies	41	53
Other commitments		
Leasing commitments, due within 12 months	25	25
Leasing commitments, due after 12 months	65	147
Other commitments <sup>2)</sup>	146	175
<b>Total</b>	<b>485</b>	<b>779</b>

<sup>1)</sup> Mortgages given relate mainly to mandatory security for borrowing from Finnish pension insurance companies.

<sup>2)</sup> Other commitments relate mainly to commodity contracts.

### Pension commitments of the President and CEO and the members of the Group Executive Team

Refer Note 3.2 Key management personnel.

### Related party transactions

Refer Note 8.3 Related party transactions.

### Derivatives

All financial derivative contracts of the group were made by the parent company. All contracts were made with external counterparties except for one cross currency swap used in managing foreign currency risk of the group internal assets. Hedge accounting was not applied. Derivatives were initially recognised at cost in the balance sheet. The fair value losses of financial derivatives were recognised through the income statement and presented as a provision in the balance sheet.

Financial risks, fair values and maturities of the group external derivatives are disclosed in Note 6.1 Financial risk management and Note 6.2 Derivatives and hedge accounting and the group internal financial derivative in Note 16 Provisions of the parent company.

# Auditor's report

(Translation from the Finnish Original)

To the Annual General Meeting of UPM-Kymmene Corporation

## Report on the audit of the financial statements

### Opinion

In our opinion,

- the consolidated financial statements give a true and fair view of the group's financial performance and financial position in accordance with International Financial Reporting Standards (IFRS) as adopted by the EU
- the financial statements give a true and fair view of the parent company's financial performance and financial position in accordance with the laws and regulations governing the preparation of the financial statements in Finland and comply with statutory requirements.

### What we have audited

We have audited the financial statements of UPM-Kymmene Corporation (business identity code: 1041090-0) for the year ended 31 December, 2016. The financial statements comprise:

- the consolidated balance sheet, income statement, statement of comprehensive income, statement of changes in equity, statement of cash flows and notes, including a summary of significant accounting policies
- the parent company's balance sheet, income statement, statement of cash flows and notes.

### Basis for opinion

We conducted our audit in accordance with good auditing practice in Finland. Our responsibilities under good auditing practice are further described in the Auditor's Responsibilities for the Audit of the Financial Statements section of our report.

We believe that the audit evidence we have obtained is sufficient and appropriate to provide a basis for our opinion.

### Independence

We are independent of the parent company and of the group companies in accordance with the ethical requirements that are applicable in Finland and are relevant to our audit, and we have fulfilled our other ethical responsibilities in accordance with these requirements.

## Our audit approach

### OVERVIEW

Materiality	<ul style="list-style-type: none"> <li>Overall group materiality: EUR 54 million, which represents 5% of profit before tax.</li> </ul>
Group scoping	<ul style="list-style-type: none"> <li>The entities in scope included two individually significant components, nine significant components and four components with selected significant financial statement line items.</li> </ul>
Key audit matters	<ul style="list-style-type: none"> <li>Valuation of forest assets</li> <li>Valuation of energy shareholdings</li> <li>Recoverability of deferred tax assets</li> <li>Litigations</li> </ul>

As part of designing our audit, we determined materiality and assessed the risks of material misstatement in the financial statements. In particular, we considered where management made subjective judgements; for example, in respect of significant accounting estimates that involved making assumptions and considering future events that are inherently uncertain.

### Materiality

The scope of our audit was influenced by our application of materiality. An audit is designed to obtain reasonable assurance whether the financial statements are free from material misstatement. Misstatements may arise due to fraud or error. They are considered material if individually or in aggregate, they could reasonably be expected to influence the economic decisions of users taken on the basis of the financial statements.

Based on our professional judgement, we determined certain quantitative thresholds for materiality, including the overall group materiality for the consolidated financial statements as set out in the table below. These, together with qualitative considerations, helped us to determine the scope of our audit and the nature, timing and extent of our audit procedures and to evaluate the effect of misstatements on the financial statements as a whole.

MATERIALITY	
Overall group materiality	EUR 54 million (60 million).
How we determined it	5% of profit before tax.
Rationale for the materiality benchmark applied	We chose profit before taxes as the benchmark because, in our view, it is the benchmark against which the performance of the group is commonly measured by users, and is a generally accepted benchmark. We chose 5% which is within the range of acceptable quantitative materiality thresholds in auditing standards.

### How we tailored our group audit scope

We tailored the scope of our audit, taking into account the structure of the UPM group, the accounting processes and controls, and the industry in which the group operates.

We determined the type of work that needed to be performed at group companies by us, as the group engagement team, or by

auditors from other PwC network firms operating under our instruction. Audits were performed in group companies which were considered significant either because of their individual financial significance or due to their specific nature, covering the majority of revenue, assets and liabilities of the group. Selected specified procedures as well as analytical procedures were performed to cover the remaining group companies.

### Key audit matters

Key audit matters are those matters that, in our professional judgment, were of most significance in our audit of the financial statements of the current period. These matters were addressed in the context of our audit of the financial statements as a whole, and in forming our opinion thereon, and we do not provide a separate opinion on these matters.

As in all of our audits, we also addressed the risk of management override of internal controls, including among other matters consideration of whether there was evidence of bias that represented a risk of material misstatement due to fraud.

KEY AUDIT MATTER IN THE AUDIT OF THE GROUP	HOW OUR AUDIT ADDRESSED THE KEY AUDIT MATTER
<p>Valuation of forest assets <b>Refer to note 4.2</b>, in the consolidated financial statements for the related disclosures.</p> <p>The group owns about one million hectares of forests and plantations in Finland, the United States and Uruguay valued at EUR 1,734 million at 31 December 2016. Forest assets are measured at fair value less cost to sell. The fair value is calculated on the basis of discounted future expected cash flows as there is a lack of a liquid market. Young saplings are valued at cost. Main factors used in the valuation are estimates for growth and wood harvested, stumpage prices and discount rates.</p> <p>We focused on this area as the amounts are material, the valuation process is complex and judgmental and is based on assumptions that are affected by expected future market or economic conditions.</p>	<p>In testing the valuation of forest assets, in conjunction with our valuation specialists we:</p> <ul style="list-style-type: none"> <li>Assessed the methodologies adopted by management for the valuation;</li> <li>Tested the mathematical accuracy of the model used for valuation;</li> <li>Assessed the discount rates applied in the valuation;</li> <li>Assessed the other key valuation assumptions; and,</li> <li>Validated key inputs and data used in valuation model such as stumpage price, trend price forecast, tree growth assumptions, consumer price index and inflation.</li> </ul> <p>We found the methodologies used and the assumptions applied to be appropriate.</p>
<p>Valuation of energy shareholdings <b>Refer to note 4.3</b>, in the consolidated financial statements for the related disclosures</p> <p>The energy shareholdings amounted to EUR 1,932 million at 31 December 2016. The energy shareholdings are unlisted equity investments in energy companies and are valued at fair value through other comprehensive income, net of tax if applicable. The fair value is determined on a discounted cash flow basis. The main factors impacting the future cash flows include future electricity prices, price trends, discount rates and the start-up schedule of the nuclear power plant unit Olkiluoto 3.</p> <p>We focused on this area as the amounts are material, the valuation process is complex and judgmental and is based on assumptions that are affected by expected future market or economic conditions.</p>	<p>In testing the valuation of the energy shareholdings, in conjunction with our valuation specialists we:</p> <ul style="list-style-type: none"> <li>Assessed the methodology adopted by management for the valuation;</li> <li>Tested the mathematical accuracy of the model used for valuation;</li> <li>Assessed the future electricity prices and price trends;</li> <li>Assessed the discount rate applied in the valuation;</li> <li>Validated the Olkiluoto 3 nuclear power plant unit start-up schedule against the most recent available information;</li> <li>Validated key inputs and data used in valuation model such as production costs and volumes, UPM's ownership percentages, inflation, tax rate and net debt.</li> </ul> <p>We found the methodologies and the assumptions applied to be appropriate.</p>

KEY AUDIT MATTER IN THE AUDIT OF THE GROUP	HOW OUR AUDIT ADDRESSED THE KEY AUDIT MATTER
<p>Recoverability of deferred tax assets <b>Refer to note 7.2</b>, in the consolidated financial statements for the related disclosures.</p> <p>The group has recognised deferred tax assets of EUR 226 million on net operating loss carry-forwards, of which most relates to German subsidiaries. In Germany the net operating loss carry-forwards do not expire. We focused on this area because the recognition of deferred tax assets relies on the significant application of judgement by the management in respect of assessing the probability and sufficiency of future taxable profits.</p>	<p>We assessed whether historical profitability in German subsidiaries support the recognition of the deferred tax asset. Despite recent history of profits for the German tax group we also assessed whether the management's forecasts of future profitability support the recoverability of deferred tax assets.</p>
<p>Litigations <b>Refer to note 9.2</b>, in the consolidated financial statements for the related disclosures.</p> <p>We focused on this area because the group is subject to challenge in respect of a number of legal matters, many of which are beyond its control. Consequently, management makes judgements about the incidence and quantum of such liabilities arising from litigation which are subject to the future outcome of legal processes. In particular the group has disclosed that it is participating in a project to construct a new nuclear power plant unit Olkiluoto 3 through its shareholdings in Pohjolan Voima Oy. The supplier AREVA-Siemens, which is constructing the power plant unit initiated arbitration proceedings in 2008 and submitted a claim concerning the delay of project and related costs.</p>	<p>We evaluated the group's assessment of the nature and status of litigations and claims and discussed them with group management including in-house counsel for significant cases.</p> <p>We examined the group's conclusions with respect to the disclosures made for significant cases, both considering the correspondence between the group and its external legal counsel and independently communicating with certain of those external legal counsel.</p> <p>As set out in the financial statements, the outcome of such cases is dependent on the future outcome of continuing legal processes and consequently the disclosures are subject to inherent uncertainty.</p>

We have no key audit matters to report with respect to our audit of the parent company financial statements.

### Responsibilities of the Board of Directors and the Managing Director for the Financial Statements

The Board of Directors and the Managing Director are responsible for the preparation of consolidated financial statements that give a true and fair view in accordance with International Financial Reporting Standards (IFRS) as adopted by the EU, and of financial statements that give a true and fair view in accordance with the laws and regulations governing the preparation of financial statements in Finland and comply with statutory requirements. The Board of Directors and the Managing Director are also responsible for such internal control as they determine is necessary to enable the preparation of financial statements that are free from material misstatement, whether due to fraud or error.

In preparing the financial statements, the Board of Directors and the Managing Director are responsible for assessing the parent company's and the group's ability to continue as going concern, disclosing, as applicable, matters relating to going concern and using the going concern basis of accounting. The financial statements are prepared using the going concern basis of accounting unless there is an intention to liquidate the parent company or the group or cease operations, or there is no realistic alternative but to do so.

### Auditor's Responsibilities for the Audit of the Financial Statements

Our objectives are to obtain reasonable assurance on whether the financial statements as a whole are free from material misstatement, whether due to fraud or error, and to issue an auditor's report that includes our opinion. Reasonable assurance is a high level of assurance, but is not a guarantee that an audit conducted in accordance with good auditing practice will always detect a material misstatement when it exists. Misstatements can arise from fraud or

error and are considered material if, individually or in the aggregate, they could reasonably be expected to influence the economic decisions of users taken on the basis of these financial statements.

As part of an audit in accordance good auditing practice, we exercise professional judgment and maintain professional skepticism throughout the audit. We also:

- Identify and assess the risks of material misstatement of the financial statements, whether due to fraud or error, design and perform audit procedures responsive to those risks, and obtain audit evidence that is sufficient and appropriate to provide a basis for our opinion. The risk of not detecting a material misstatement resulting from fraud is higher than for one resulting from error, as fraud may involve collusion, forgery, intentional omissions, misrepresentations, or the override of internal control.
- Obtain an understanding of internal control relevant to the audit in order to design audit procedures that are appropriate in the circumstances, but not for the purpose of expressing an opinion on the effectiveness of the parent company's or the group's internal control.
- Evaluate the appropriateness of accounting policies used and the reasonableness of accounting estimates and related disclosures made by management.
- Conclude on the appropriateness of the Board of Directors' and the Managing Director's use of the going concern basis of accounting and based on the audit evidence obtained, whether a material uncertainty exists related to events or conditions that may cast significant doubt on the parent company's or the group's ability to continue as a going concern. If we conclude that a material uncertainty exists, we are required to draw attention in our auditor's report to the related disclosures in the financial statements or, if such disclosures are inadequate, to modify our opinion. Our conclu-

## Other reporting requirements

### Other information

sions are based on the audit evidence obtained up to the date of our auditor's report. However, future events or conditions may cause the parent company or the group to cease to continue as a going concern.

- Evaluate the overall presentation, structure and content of the financial statements, including the disclosures, and whether the financial statements represent the underlying transactions and events so that the financial statements give a true and fair view.
- Obtain sufficient appropriate audit evidence regarding the financial information of the entities or business activities within the group to express an opinion on the consolidated financial statements. We are responsible for the direction, supervision and performance of the group audit. We remain solely responsible for our audit opinion.

We communicate with those charged with governance regarding, among other matters, the planned scope and timing of the audit and significant audit findings, including any significant deficiencies in internal control that we identify during our audit.

We also provide those charged with governance with a statement that we have complied with relevant ethical requirements regarding independence, and to communicate with them all relationships and other matters that may reasonably be thought to bear on our independence, and where applicable, related safeguards.

From the matters communicated with those charged with governance, we determine those matters that were of most significance in the audit of the financial statements of the current period and are therefore the key audit matters. We describe these matters in our auditor's report unless law or regulation precludes public disclosure about the matter or when, in extremely rare circumstances, we determine that a matter should not be communicated in our report because the adverse consequences of doing so would reasonably be expected to outweigh the public interest benefits of such communication.

The Board of Directors and the Managing Director are responsible for the other information. The other information comprises information included in the report of the Board of Directors and in the Annual Report, but does not include the financial statements and our auditor's report thereon.

Our opinion on the financial statements does not cover the other information.

In connection with our audit of the financial statements, our responsibility is to read the other information identified above and, in doing so, consider whether the other information is materially inconsistent with the financial statements or our knowledge obtained in the audit, or otherwise appears to be materially misstated. With respect to the report of the Board of Directors, our responsibility also includes considering whether the report of the Board of Directors has been prepared in accordance with the applicable laws and regulations.

In our opinion

- the information in the report of the Board of Directors is consistent with the information in the financial statements
- the report of the Board of Directors has been prepared in accordance with the applicable laws and regulations.

If, based on the work we have performed, we conclude that there is a material misstatement of the other information, we are required to report that fact. We have nothing to report in this regard.

### Other opinions

We support the proposal that the financial statements are adopted. The proposal by the Board of Directors regarding the distribution of profits is in compliance with the Limited Liability Companies Act. We support that the members of the Board of Directors and the Managing Director of the parent company should be discharged from liability for the financial period audited by us.

Helsinki 17 February 2017

**PricewaterhouseCoopers Oy**  
Authorised Public Accountants

*Merja Lindh*  
Authorised Public Accountant (KHT)

# Information on shares

Disclosures below form part of the Report of the Board of Directors.

## Changes in number of shares

	2016	2015	2014	2013	2012
Number of shares 1 January	533,735,699	533,735,699	529,301,897	526,124,410	524,972,838
Options exercised	–	–	4,433,802	3,177,487	1,151,572
<b>Number of shares at 31 December</b>	<b>533,735,699</b>	<b>533,735,699</b>	<b>533,735,699</b>	<b>529,301,897</b>	<b>526,124,410</b>

## Major shareholders at 31 December 2016

	NUMBER OF SHARES	HOLDING %
Ilmarinen Mutual Pension Insurance Company	7,314,789	1.37
Varma Mutual Pension Insurance Company	6,074,488	1.14
The State Pension Fund	4,630,000	0.87
The Local Government Pensions Institution	4,121,749	0.77
ELO Mutual Pension Insurance Company	4,070,000	0.76
The Society of Swedish Literature in Finland	3,745,780	0.70
Mandatum Life Insurance Company Limited	3,685,320	0.69
Swiss National Bank	3,520,442	0.66
Kymin Osakeyhtiön 100-vuotissäätiö	1,696,230	0.32
The Social Insurance Institution of Finland	1,603,690	0.30
Nominees & registered foreign owners	367,265,573	68.81
Others	126,007,638	23.61
<b>Total</b>	<b>533,735,699</b>	<b>100.00</b>

## Shareholders by category at 31 December, %

	2016	2015	2014	2013	2012
Companies	2.2	2.3	2.8	3.2	4.3
Financial institutions and insurance companies	3.1	3.4	4.3	4.1	5.4
Public bodies	5.8	6.0	8.0	7.8	7.9
Non-profit organisations	4.8	5.0	5.3	5.7	6.2
Households	15.3	15.8	17.2	18.7	19.9
Non-Finnish nationals	68.8	67.5	62.4	60.5	56.3
<b>Total</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>

## Share distribution at 31 December 2016

SIZE OF SHAREHOLDINGS	NUMBER OF SHAREHOLDERS	% OF SHAREHOLDERS	NUMBER OF SHARES, MILLION	% OF SHARES
1 – 100	21,516	25.45	1.2	0.2
101 – 1,000	46,256	54.72	19.1	3.6
1,001 – 10,000	15,432	18.25	42.3	7.9
10,001 – 100,000	1,204	1.42	28.8	5.4
100,001 –	131	0.15	82.0	15.4
<b>Total</b>	<b>84,539</b>	<b>100.00</b>	<b>173.4</b>	<b>32.5</b>
Nominee-registered			360.1	67.5
Not registered as book entry units			0.2	0.0
<b>Total</b>			<b>533.7</b>	<b>100.0</b>

Under the provisions of the Securities Markets Act, changes in holdings must be disclosed when the holding reaches, exceeds or falls below 5, 10, 15, 20, 25, 30, 50 or 66.7 (2/3) per cent of the voting rights or the number of shares of the company. The stock exchange releases on notifications of changes in holdings pursuant to Chapter 9, Section 5 of the Securities Market Act are available in UPM website: [www.upm.com/investors](http://www.upm.com/investors).

Adjusted share-related indicators

	2016	2015	2014	2013	2012	2011	2010	2009	2008	2007
Earnings per share (EPS), EUR	1.65	1.72	0.96	0.63	-2.14	0.88	1.08	0.33	-0.35	0.16
Comparable EPS, EUR	1.65	1.38	1.20	0.91	0.74	0.93	0.99	0.11	0.42	1.00
Equity per share, EUR	15.43	14.89	14.02	14.08	14.18	14.22	13.64	12.67	11.74	13.21
Dividend per share, EUR	<sup>1)</sup> 0.95	0.75	0.70	0.60	0.60	0.60	0.55	0.45	0.40	0.75
Dividend to earnings ratio, %	57.6	43.6	72.9	95.2	neg.	68.2	50.9	136.4	neg.	468.8
Dividend to operating cash flow, %	30	34	30	43	30	30	29	19	33	44
Effective dividend yield, %	4.1	4.4	5.1	4.9	6.8	7.1	4.2	5.4	4.4	5.4
P/E ratio	14.1	10.0	14.2	19.5	neg.	9.7	12.2	25.2	neg.	86.4
Operating cash flow per share, EUR	3.16	2.22	2.33	1.39	1.98	1.99	1.89	2.42	1.21	1.66
Dividend distribution, EURm	<sup>1)</sup> 507	400	373	317	317	315	286	234	208	384
Share price at 31 Dec., EUR	23.34	17.23	13.62	12.28	8.81	8.51	13.22	8.32	9.00	13.82
Lowest quotation, EUR	13.71	13.19	10.07	7.30	7.82	7.34	7.37	4.33	8.15	13.01
Highest quotation, EUR	23.41	19.26	13.99	13.02	10.98	15.73	13.57	9.78	13.87	20.59
Average quotation for the period, EUR	17.51	16.37	12.26	9.42	9.21	11.17	10.43	7.06	11.32	17.30
Market capitalisation, EURm	12,452	9,192	7,266	6,497	4,633	4,466	6,874	4,326	4,680	7,084
Shares traded, EURm <sup>2)</sup>	6,749	7,469	6,233	5,308	5,534	8,835	8,243	5,691	10,549	16,472
Shares traded (1,000)	385,355	456,168	508,318	563,382	600,968	790,967	790,490	805,904	932,136	952,300
Shares traded, % of all shares	72.2	85.5	95.6	106.7	114.4	151.5	152.0	155.0	180.1	182.1
Number of shares, average (1,000)	533,505	533,505	531,574	527,818	525,434	521,965	519,970	519,955	517,545	522,867
Number of shares at the end of period (1,000)	533,736	533,736	533,736	529,302	526,124	524,973	519,970	519,970	519,970	512,569
of which treasury shares (1,000)	231	231	231	231	231	211	-	-	16	-

<sup>1)</sup> Proposal

<sup>2)</sup> Trading on the Nasdaq Helsinki Main Market. Treasury shares bought by the company are included in shares traded.

The definitions of share related indicators are described below:

SHARE RELATED INDICATORS	DEFINITION
Earnings per share (EPS), EUR	Profit for the period attributable to owners of the parent company divided by adjusted average number of shares during the period excluding treasury shares.
Comparable EPS, EUR	Earnings per share calculated in accordance with IFRS excluding items affecting comparability and their tax impact.
Equity per share, EUR	Equity attributable to the owners of the parent company in relation to the adjusted number of shares at the end of period.
Dividend per share, EUR	Dividend distribution divided by adjusted number of shares at the end of period.
Dividend to earnings ratio, %	Dividend per share as a percentage of earnings per share.
Dividend to operating cash flow, %	Dividend per share as a percentage of operating cash flow per share.
Effective dividend yield, %	Adjusted dividend per share as a percentage of adjusted share price at 31.12.
P/E ratio	Adjusted share price in relation to the earnings per share.
Operating cash flow per share, EUR	Operating cash flow divided by adjusted average number of shares during the period excluding treasury shares.
Market capitalisation	Total number of shares (excluding those held as treasury shares) multiplied by the share price at the end of period.
Adjusted share price at the end of period	Share price at the end of period in relation to share issue coefficient.
Adjusted average share price	Total value of shares traded in relation to adjusted number of shares traded during the period.

# Financial information 2007–2016

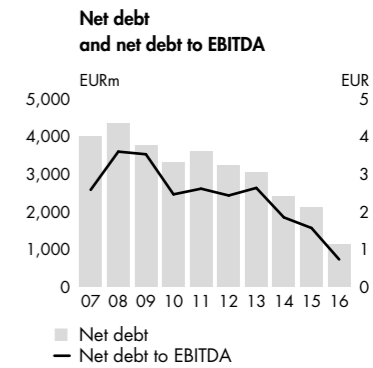
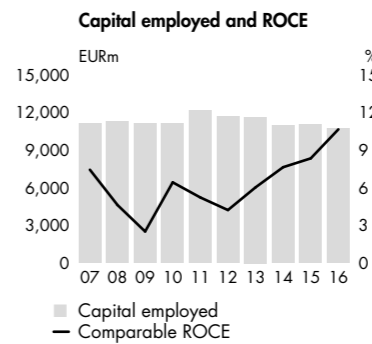
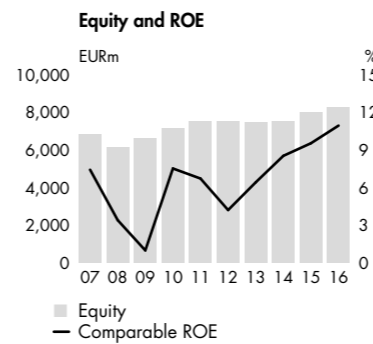
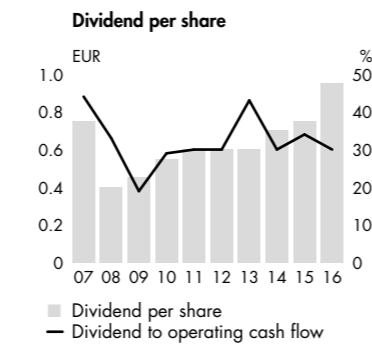
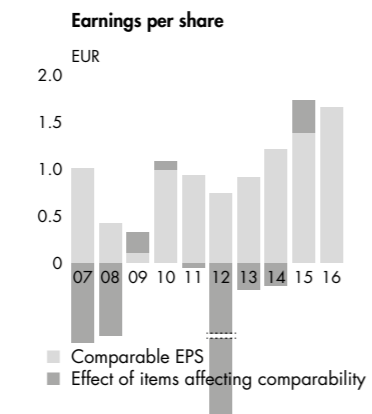
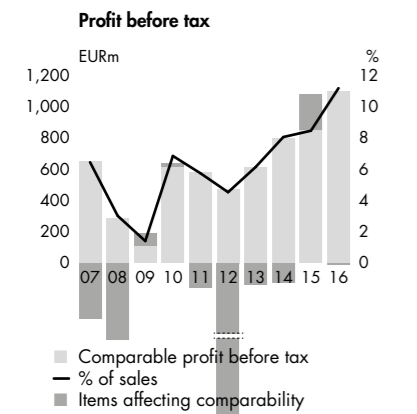
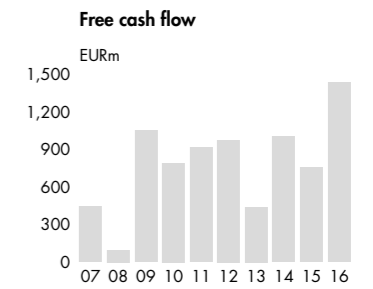
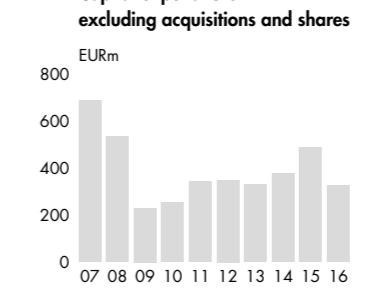
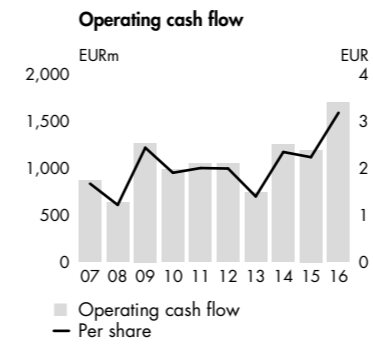
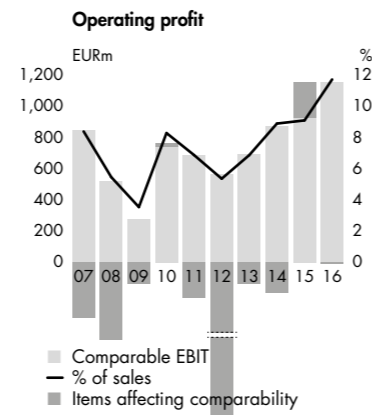
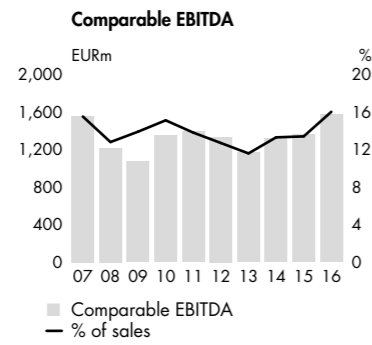
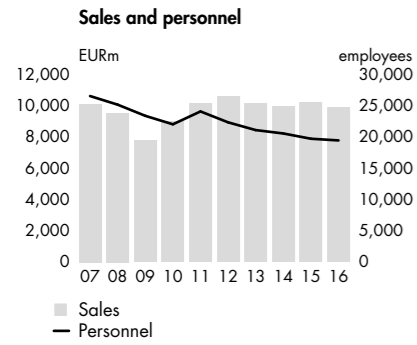
EURm, OR AS INDICATED	2016	2015	2014	2013	2012	2011	2010	2009	2008	2007
<b>Income statement</b>										
Sales	9,812	10,138	9,868	10,054	10,492	10,068	8,924	7,719	9,461	10,035
Comparable EBITDA <sup>1)</sup>	1,560	1,350	1,306	1,161	1,325	1,383	1,343	1,062	1,206	1,546
% of sales	15.9	13.3	13.2	11.5	12.6	13.7	15.0	13.8	12.7	15.4
Operating profit	1,135	1,142	674	548	1,318	459	755	135	24	483
% of sales	11.6	11.3	6.8	5.5	-12.6	4.6	8.5	1.7	0.3	4.8
Comparable EBIT	1,143	916	866	683	556	682	731	270	513	835
% of sales	11.6	9.0	8.8	6.8	5.3	6.8	8.2	3.5	5.4	8.3
Profit before tax	1,080	1,075	667	475	-1,271	417	635	187	-201	292
% of sales	11.0	10.6	6.8	4.7	-12.1	4.1	7.1	2.4	-2.1	2.9
Comparable profit before tax	1,089	849	793	610	471	573	611	107	282	644
% of sales	11.1	8.4	8.0	6.1	4.5	5.7	6.8	1.4	3.0	6.4
Profit for the period	880	916	512	335	-1,122	457	561	169	-180	81
% of sales	9.0	9.0	5.2	3.3	-10.7	4.5	6.3	2.2	-1.9	0.8
Comparable profit for the period	879	734	638	479	390	487	516	58	218	504
% of sales	9.0	7.2	6.5	4.8	3.7	4.8	5.8	0.8	2.3	5.0
Exports from Finland and foreign operations	8,930	9,268	8,923	9,089	9,565	9,252	8,139	7,054	8,515	9,170
Exports from Finland	4,918	4,714	4,340	4,118	4,248	4,313	3,882	3,442	4,371	4,546
<b>Balance sheet</b>										
Non-current assets	9,715	10,259	10,269	10,487	11,066	11,412	10,557	10,581	10,375	10,639
Inventories	1,346	1,376	1,356	1,327	1,388	1,429	1,299	1,112	1,354	1,342
Other current assets	2,850	2,558	2,570	2,785	2,489	2,548	1,956	1,912	2,052	1,972
Total assets	13,911	14,193	14,195	14,599	14,943	15,389	13,812	13,605	13,781	13,953
Total equity	8,237	7,944	7,480	7,455	7,461	7,477	7,109	6,602	6,120	6,783
Non-current liabilities	3,364	4,328	4,717	5,019	5,430	5,320	4,922	5,432	5,816	4,753
Current liabilities	2,309	1,921	1,998	2,125	2,052	2,588	1,781	1,571	1,828	2,417
Total equity and liabilities	13,911	14,193	14,195	14,599	14,943	15,389	13,812	13,605	13,781	13,953
Capital employed at year end	10,657	11,010	10,944	11,583	11,603	12,110	11,087	11,066	11,193	11,098
Capital expenditure	325	520	411	362	357	1,179	257	913	551	708
% of sales	3.3	5.1	4.2	3.6	3.4	11.7	2.9	11.8	5.8	7.1
Capital expenditure excluding acquisitions and shares	325	486	375	329	347	340	252	229	532	683
% of sales	3.3	4.8	3.8	3.3	3.3	3.4	2.8	3.0	5.6	6.8
<b>Cash flow and net debt</b>										
Operating cash flow	1,686	1,185	1,241	735	1,040	1,041	982	1,259	628	867
Free cash flow	1,424	750	994	438	968	910	787	1,045	96	442
Net debt	1,131	2,100	2,401	3,040	3,210	3,592	3,286	3,730	4,321	3,973
<b>Key figures</b>										
Return on capital employed (ROCE), %	10.5	10.3	6.5	4.8	neg.	4.4	6.6	3.2	0.2	4.3
Comparable ROCE, %	10.6	8.3	7.6	6.0	4.2	5.2	6.4	2.5	4.6	7.4
Return on equity (ROE), %	10.9	11.9	6.9	4.5	neg.	6.3	8.2	2.8	neg.	1.2
Comparable ROE, %	10.9	9.5	8.5	6.4	4.2	6.7	7.5	1.0	3.4	7.4
Gearing ratio, %	14	26	32	41	43	48	46	56	71	59
Net debt to EBITDA	0.73	1.56	1.84	2.62	2.42	2.60	2.45	3.51	3.58	2.57
Equity to assets ratio, %	59.4	56.1	52.7	51.1	50.0	48.6	51.5	48.6	44.5	48.8
<b>Personnel</b>										
Personnel at year end	19,310	19,578	20,414	20,950	22,180	23,909	21,869	23,213	24,983	26,352
<b>Deliveries</b>										
Pulp (1,000 t)	3,419	3,224	3,287	3,163	3,128	2,992	2,919	1,759	1,982	1,927
Electricity (GWh)	8,782	8,966	8,721	8,925	9,486	8,911	9,426	8,865	10,167	10,349
Papers, total (1,000 t)	9,613	9,771	10,028	10,288	10,871	10,615	9,914	9,021	10,641	11,389
Plywood (1,000 m³)	764	740	731	737	679	656	638	567	806	945
Sawn timber (1,000 m³)	1,751	1,731	1,609	1,661	1,696	1,683	1,729	1,497	2,132	2,325

<sup>1)</sup> EBITDA 2007–2011 includes change in fair value of unrealised cash flow and commodity hedges.

In 2016, UPM has relabeled the previously referenced “excluding special items” non-GAAP financial measures with “comparable” performance measures as published in » [UPM's stock exchange release on 14 April 2016](#). Corresponding 2015 and 2014 measures have been adjusted accordingly.

» Refer Note 10.2 Alternative performance measures, for definitions of key figures.

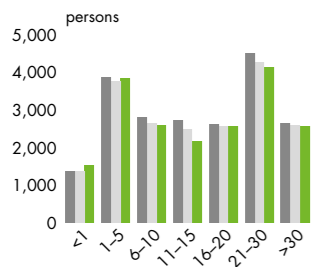
# Financial information 2007–2016



In 2016 UPM has relabeled the previously referenced "excluding special items" non-GAAP financial measures with "comparable" performance measures. Corresponding 2014 and 2015 group measures have been revised accordingly.

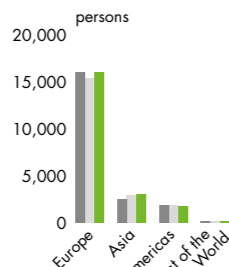
# More on responsibility

**Employees' years of service with UPM**



■ 2014, total 20,414  
 ■ 2015, total 19,578  
 ■ 2016, total 19,310

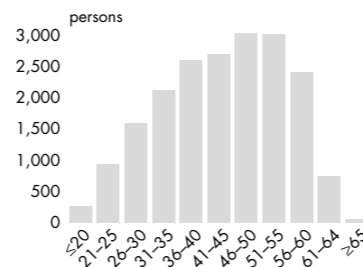
**UPM workforce by region**



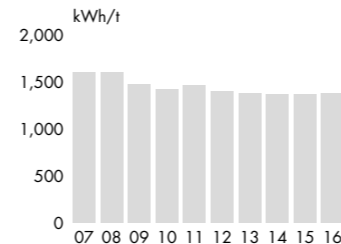
■ 2014, total 20,414\*  
 ■ 2015, total 20,184  
 ■ 2016, total 20,811

\*1 2014 figure for UPM employees, since 2015 for UPM workforce including employees and supervised external workers

**Age structure of UPM employees 2016**

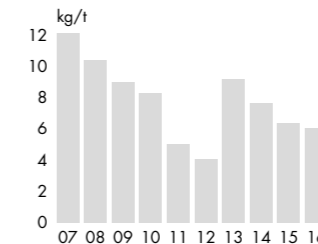


**UPM's electricity consumption per tonne of paper**



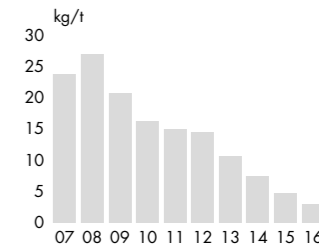
The electricity consumption per tonne of paper decreased by 14% over the last ten years due to continuous improvements of energy efficiency.

**UPM's solid waste to landfills per tonne of paper**



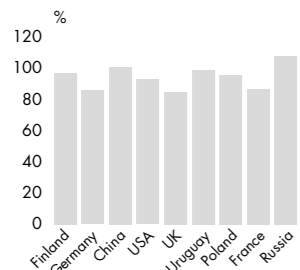
The amount of solid waste sent to landfills has decreased by 50% over the last ten years. However, from 2012 to 2013, the amount increased significantly. This is due to the fact that former reuse possibilities for ash ceased at one of UPM's paper mills. Starting from 2014, new methods of recycling were established, with further options for recycling still being investigated.

**UPM's solid waste to landfills per tonne of converted product**



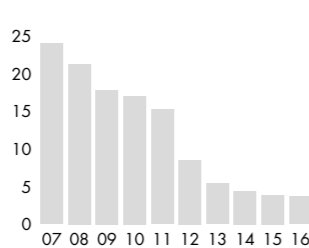
Solid waste to landfills per tonne of converted product decreased by 87% over the last ten years. Since 2007, the figure includes UPM Raflatac's label products only.

**Ratio of female to male salaries, weighted basic salary 2016**



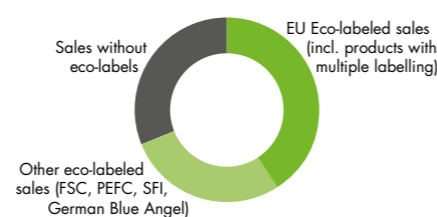
The ratio is calculated by comparing weighted average of basic salaries of women to men on the same job grades, for the nine biggest countries in terms of salaried employees. These countries cover 90% of UPM's total number of salaried employees.

**Lost-time accident frequency, UPM workforce**



Lost-time accident frequency (LTAF) is the number of lost-time accidents per one million hours of work. LTAF improved significantly over the last ten years.

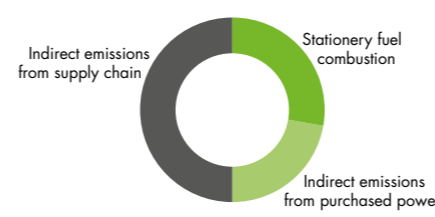
**UPM's eco-labeled sales\***



\*1 incl. Paper, Pulp, Plywood, Label material, Timber and Biocomposites

In 2016, 69% (70%) of UPM's overall sales of paper, chemical pulp, plywood, label material, timber and biocomposite products was ecolabelled. This figure includes FSC, PEFC and EU Ecolabels, and national ecolabels. Compared to previous year's reporting the scope has widened to include label material sales. UPM aims to have all applicable products ecolabelled by 2030.

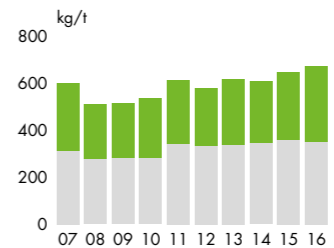
**Sources of UPM's greenhouse gas emissions\*, 2016**



\*1 measured in CO<sub>2</sub>-equivalents

Compared to the previous year UPM's overall greenhouse gas emissions have remained about the same. According to the calculation, approximately 50% of the direct and indirect greenhouse gas emissions are related to UPM's energy use, but raw materials, transportation and processing of sold products also have a significant impact. More details are available at [www.upm.com/responsibility](http://www.upm.com/responsibility).

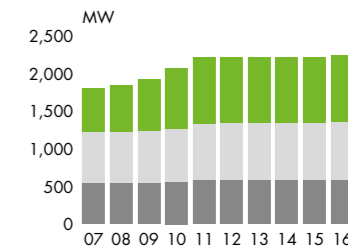
**UPM's fossil carbon dioxide emissions per tonne of paper**



■ CO<sub>2</sub> from purchased electricity per tonne of paper  
 ■ CO<sub>2</sub> from on-site energy generation per tonne of paper

In 2016 on-site CO<sub>2</sub> emissions (Scope 1) decreased mainly because of change in energy supply at UPM Hürth mill. CO<sub>2</sub> of purchased electricity (Scope 2) increased mainly due to higher CO<sub>2</sub> factors in Germany and Finland.

**UPM's CO<sub>2</sub> emission-free power generation capacity**



■ Biomass  
 ■ Hydro  
 ■ Nuclear

UPM's capacity for CO<sub>2</sub> emission-free power generation has increased over the last ten years.

## UPM BIOREFINING

- A versatile range of chemical pulp for many growing end uses with annual production capacity of 3.6 million tonnes produced in Finland and in Uruguay
- Annual capacities in tonnes by mills: UPM Fray Bentos 1.3 million; UPM Pietarsaari 800,000; UPM Kaukas 740,000 and UPM Kymi 760,000 tonnes
- Certified sawn timber with annual capacity of 1.5 million cubic metres, produced in Finland
- Wood-based renewable diesel with the annual capacity of 120 million litres produced in Finland

### Pulp

**#6** GLOBALLY

### Pulp mills

**Finland:** UPM Kaukas (Lappeenranta), UPM Kymi (Kouvola) and UPM Pietarsaari  
**Uruguay:** UPM Fray Bentos

### Sawmills

**Finland:** UPM Alholma (Pietarsaari), UPM Kaukas (Lappeenranta), UPM Korkeakoski (Juupajoki) and UPM Seikku (Pori)

### Biorefinery

**Finland:** UPM Lappeenranta Biorefinery

## UPM ENERGY

- Cost competitive low-emission electricity generation in Finland consisting of hydro, nuclear and condensing power. The total electricity generation capacity is 1,494 MW, including UPM's own hydropower plants and shareholdings in other energy companies
- Largest shareholdings:
  - 44.3% of Pohjolan Voima Oy (PVO), which is a majority shareholder (58.5%) in Teollisuuden Voima Oyj (TVO)
  - 19% of Kemijoki Oy's hydropower shares

**#2** IN FINLAND

### Hydropower plants:

**Finland:** Harjavalta, Kallioinen (Sotkamo), Kallimo (Joensuu), Katerma (Kuhmo), Kelti (Kouvola), Kuusankoski (Kouvola), Tyrväkä (Sastamala), Voikkaa (Kouvola) and Aetsä

## UPM RAFLATAC

- Self-adhesive label materials for product and information labelling
- 10 factories and 26 slitting and distribution terminals in all continents

**#2** GLOBALLY

### Labelstock factories

**China:** Changshu  
**Finland:** Tampere  
**France:** Nancy  
**Malaysia:** Johor  
**Poland:** Kobierzyce (Wroclaw) and Nowa Wieś (Wroclaw)  
**United Kingdom:** Scarborough  
**USA:** Mills River, NC; Fletcher, NC and Dixon, IL

### Slitting and distribution terminals

**Argentina:** Buenos Aires  
**Australia:** Adelaide, Brisbane and Melbourne  
**Brazil:** Jaguariúna  
**China:** Chengdu, Guangzhou and Tianjin  
**India:** Bangalore and Navi Mumbai  
**Indonesia:** Jakarta  
**Italy:** Osnago  
**México:** Ciudad de México and Guadalajara  
**New Zealand:** Auckland  
**Russia:** Moscow and St Petersburg  
**South Africa:** Cape Town, Durban and Johannesburg  
**Spain:** Barcelona  
**Thailand:** Bangkok  
**Turkey:** Istanbul  
**Ukraine:** Kiev  
**USA:** Ontario, CA  
**Vietnam:** Binh Thang Ward Di An District

## UPM SPECIALTY PAPERS

- Labelling materials for global markets and fine papers for Asian markets
- Annual production capacity of 1.0 million tonnes of fine papers and 0.7 million tonnes of labelling and packaging materials

### Label papers

**#1** GLOBALLY

### High-end office papers

**#1** CHINA

### Paper mills

**China:** UPM Changshu  
**Finland:** UPM Jämsänkoski (Jämsä) and UPM Tervasaari (Valkeakoski)

## UPM PAPER ENA

- Magazine paper, newsprint and fine papers for a wide range of end uses
- Annual paper production capacity of 8.4 million tonnes, manufactured in 15 paper mills
- Capacities: Annual production capacity of 4.2 million tonnes of magazine papers, 2.1 million tonnes of newsprint and 2.1 million tonnes of fine papers
- The combined heat and power (CHP) plants operating on paper mill sites included in the business area

**#1** IN EUROPE

### Paper mills

**Austria:** UPM Steyrermühl  
**Finland:** UPM Jämsä River Mills (Jämsänkoski and Kaipola), UPM Kaukas (Lappeenranta), UPM Kymi (Kouvola) and UPM Rauma  
**France:** UPM Chapelle Darblay (Grand-Couronne)  
**Germany:** UPM Augsburg, UPM Ettringen, UPM Hürth, UPM Nordland Papier (Dörpen), UPM Platting and UPM Schongau  
**United Kingdom:** UPM Caledonian Paper (Irvine), UPM Shotton Paper  
**USA:** UPM Blandin (Grand Rapids, MN)

## UPM PLYWOOD

- Plywood and veneer products mainly for construction, vehicle flooring and LNG shipbuilding as well as other manufacturing industries
- Production capacity: approximately one million cubic metres
- Production in 9 mills in Finland, Estonia and Russia

### High and mid segments

**#1** IN EMEA

### LNG plywood

**#1** GLOBALLY

### Plywood mills

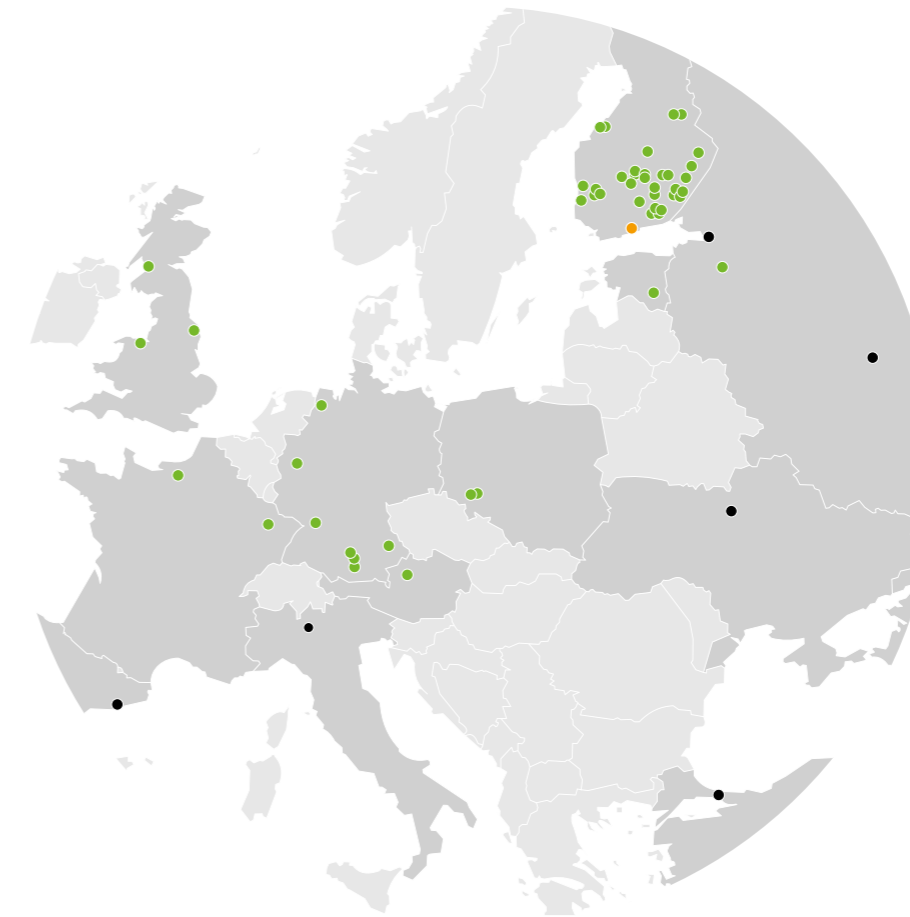
**Estonia:** UPM Otepää  
**Finland:** UPM Joensuu, UPM Jyväskylä, UPM Pellso (three mills, Ristiina, Mikkeli) and UPM Savonlinna  
**Russia:** UPM Chudovo

### Veneer mill

**Finland:** UPM Kalso (Vuohijärvi, Kouvola)

# Competitive businesses, strong market positions

Our 19,300 people work in 45 countries across six continents. With head office in Finland, our most important markets are in Europe, North America and Asia.



- Production plant
- Slitting and distribution terminal
- Group Head Office

## OTHER OPERATIONS

- Wood Sourcing and Forestry: Purchasing wood and biomass in 14 countries, 640,000 ha of own forests in Finland and 75,000 ha in the USA, offering forestry services to private forest owners in Finland
- UPM Biocomposites producing UPM ProFi outdoor products and UPM Formi composite material for injection moulding and extrusion
- UPM Biochemicals developing chemical building blocks, lignin products, biofibrils, and biomedical products.

### Biocomposites mills

**Finland:** UPM Lahti  
**Germany:** UPM Bruchsal (Karlsruhe)

### Biochemicals innovation unit

**Finland:** Biomedicum research and educational centre, Helsinki.

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# Annual General Meeting

UPM-Kymmene Corporation will hold its Annual General Meeting on Wednesday 29 March 2017 at 14:00 (EET), at Messukeskus, Messuaukio 1, 00520 Helsinki, Finland. Instructions for those wishing to attend are given in the notice to the meeting, which is available on the company's website at [www.upm.com](http://www.upm.com).

## Dividend

The Board of Directors has decided to propose to the Annual General Meeting that a dividend of EUR 0.95 per share be paid for the 2016 financial year. The dividend will be paid to the shareholders who are registered in the company's shareholder register held by Euroclear Finland Ltd. on 31 March 2017, which is the record date for the dividend payment. The Board of Directors proposes that the dividend will be paid on 12 April 2017.

## Financial information in 2017

UPM will publish the financial reports in 2017 as follows:

- The Interim Report for January–March (Q1) on 25 April 2017
- The Interim Report for January–June (Q2) on 25 July 2017
- The Interim Report for January–September (Q3) on 24 October 2017



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