

UPM Caledonian

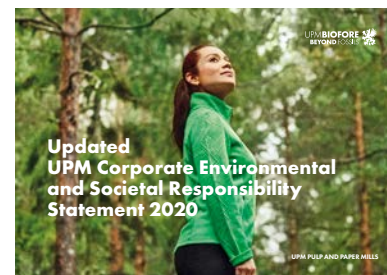
# ENVIRONMENTAL AND SOCIETAL RESPONSIBILITY **2020**



# UPM Caledonian

UPM's Caledonian mill is situated in Irvine on the West Coast of Scotland approx. 50 kilometres southwest of Glasgow. In production since April 1989 the Caledonian mill is capable of producing 250,000 tonnes of lightweight coated paper (LWC) for printing magazines, catalogues, brochures. The mill has a Biomass Combined Heat and Power (CHP) plant, a single paper machine line, a debarking plant, a pressurised groundwood (PGW) mechanical pulp mill and a primary effluent treatment plant. Effluent is then treated further in the neighbouring Municipal Waste Water Treatment Plant operated by a third party.

Environmental issues are an integral part of everyday operations. Targets are set as part of our annual business planning process with our key environmental aspects and impacts identified through our regulatory and business requirements to demonstrate continuous improvement. These are followed closely throughout the year. Our objective is to produce attractive and competitive paper with the lowest possible overall environmental impact. Through open communication we actively provide our customers, employees, environmental authorities, as well as our local community with information on environmental issues and knowledge of the mills operations.



UPM Caledonian Environmental and Societal Responsibility 2020 is a supplement to the Corporate Environmental and Societal Responsibility Statement of UPM's pulp and paper mills (available at [www.upm.com](http://www.upm.com)) and provides mill-specific environmental and societal performance data and trends for the year 2020.

UPM delivers renewable and responsible solutions and innovates for a future beyond fossils across six business areas: UPM Biorefining, UPM Energy, UPM Raflatac, UPM Specialty Papers, UPM Communication Papers and UPM Plywood. As the industry leader in responsibility we are committed to the UN Business Ambition for 1.5°C and the science-based targets to mitigate climate change. We employ 18,000 people worldwide and our annual sales are approximately EUR 8.6 billion. Our shares are listed on Nasdaq Helsinki Ltd. UPM Biofore – Beyond fossils. [www.upm.com](http://www.upm.com)

<b>Production capacity</b>	250,000 tonnes of paper
<b>Personnel</b>	276
<b>Products</b>	Coated Magazine Papers: UPM Cote H UPM Cote SB (Customer Specific) H UPM Ultra H UPM Ultra Silk H UPM Ultra Silk Plus H UPM Cote Blueshade H
<b>Certificates</b>	ISO 9001 – Quality Management System ISO 14001 – Environmental Management System ISO 45001 – Occupational Health and Safety Management System PEFC™ Chain of Custody – Programme for the Endorsement of Forest Certification FSC® Chain of Custody – Forest Stewardship Council®  All certificates can be found from UPM's Certificate Finder (available at <a href="http://www.upm.com/responsibility">www.upm.com/responsibility</a> )
<b>Environmental labels</b>	EU Ecolabel



For more information about FSC certification visit [fsc.org](http://fsc.org)



For more information about PEFC certification visit [www.pefc.org](http://www.pefc.org)



# Review of year 2020

In accordance with Pollution Prevention and Control (Scotland) regulations 2012 Caledonian Paper has an integrated management system in effect covering environment, quality and occupational health and safety to ensure compliance with all permit conditions and applicable legislation.

This Report gives information on the Mill's performance and covers the most significant environmental impacts – emissions to Air and Water; Waste and Material consumption.

## Impact of COVID

The coronavirus pandemic was a dominant focus for health and safety in 2020. With a major boiler maintenance outage planned for early March, Caledonian very quickly had to establish its own protocols for managing the large numbers of contractors arriving from overseas and working on site. From early February Caledonian increased supplies of PPE in response to mitigating the impact of COVID. The first COVID risk assessment was created in March and this has been developed further and reviewed regularly since that time.

The management at Caledonian recognised the increased risk of COVID to staff, contractors and visitors coming to site and the potential for onsite transmission of the virus. The COVID Risk Assessment was used as a vehicle for establishing and communicating a very comprehensive package of measures aimed at eliminating or mitigating the risks. A COVID Resilience management team was also established to follow up all notifications of positive cases and to follow the most recent government guidance and its application. This resilience team is still in place and is chaired by the General Manager. As well as a comprehensive set of welfare and hygiene provisions, the raft of measures included: limitations and controls in existing workspaces (eg. floor markings, screens, signage, face masks); the introduction of additional restrooms to ensure social distancing; enabling employees to work from home; ensuring the adequacy of ventilation; training and communication; pre-site entry temperature checks and wearable electronic devices to aid social distancing.

Management of COVID remains a key focus as we enter 2021, especially given the increased prevalence of new strains of the virus at the end of 2020.

## Environmental Performance

UPM Caledonian operates within the boundaries of an Integrated Pollution Prevention and Control (PPC) Permit. The conditions of this permit are transposed from the European Industrial Emissions Directive with reference to the current Pulp and Paper BREF document. In 2020 there were three instances of non-compliance against the PPC permit to report to SEPA (Scottish Environmental Protection Agency) primarily as a result of fuel related issues within the CHP boiler which resulted in the carbon monoxide being above the one hour PPC emission limit value. Each instance has been investigated by the relevant teams with remedial action taken where required.

Reporting to SEPA is required on a quarterly basis for a variety of param-

eters including emissions to air, effluent and waste. There were significant improvements seen in several parameters including reductions in emissions to air for sulphur dioxide, total particulates and hydrogen chloride.

Caledonian engaged with the fuel suppliers throughout the year to improve the overall quality of the fuels which had the added benefit of reducing the waste ashes from the combustion process where waste volumes were down by approximately 200 tonnes per month. Significant progress was made to source alternative ash disposal routes to ensure no waste ash is disposed to landfill. The flyash sent to landfill did reduce in 2020 in comparison to 2019 and it is anticipated that there will be no ash to landfill in 2021.

The performance of the CHP plant was very good in 2020 with no significant periods of unplanned downtime. The main focus of the shut was the replacement of boiler tubes within the furnace ▶



A handwritten signature in blue ink, appearing to read 'Gordon Mitchell'.

Gordon Mitchell  
General Manager



A handwritten signature in black ink, appearing to read 'Sharon Gallagher'.

Sharon Gallagher  
Environment & Compliance Manager

- and at the same time upgrade the bed nozzles to improve the overall efficiency of the combustion process.

The mill replaced the main mill cooling tower in early 2020 with the latest cooling tower technology which has given a benefit of increased energy efficiency and a reduction in water losses.

#### Occupational Health and Safety

In line with the 2020 business plan the site is striving towards a zero accident culture and aims to engage all employees to ensure the development of people. LTAF (lost time accident frequency) for the site was 3.95 which is similar to that of 2019. Health and safety and the prevention of all accidents is the focus for the site with all employees encouraged to use the STAT cards (Stop, Take5 and Think) which provides employees with a tool to carry out a simple risk assessment where hazards and risks are identified, controlled and minimized. All employees were required to complete 3 safety observations during 2020 which are captured in the One safety database and are used as a tool to prevent accidents and incidents. This target was successful with 100% achieved. 88% of all required safety walks were completed which is also an excellent achievement considering the COVID impact of complying with Social distancing and minimizing all unnecessary contact between people. The purpose of safety walks is to have a systematic process in place to follow the implementation of safety rules and guidelines, ensuring their compliance and to find and share good practices. They often require observing a task being carried out at close proximity and a follow up discussion.

Absence performance for 2020 was at 3.2% which is an improvement on 2019's performance of 3,6%. Unfortunately, due to COVID restrictions several of the health and well being benefits had to be put on hold.

## UPM Caledonian

# Responsibility figures 2020



## Water

Reductions achieved in 2020 versus 2019

# 287,433m<sup>3</sup>

# 23%

 reduction in effluent COD tons.


## Certified fibre

# 90%

of fibre used in paper production was FSC and /or PEFC certified. UPMs target is to use only certified fibre by 2030.

# 69,188

 tons of LWC sold under PEFC or FSC certification schemes.

## Air



Reductions achieved in 2020 versus 2019

# 31%

reduction in Sulphur Dioxide emissions to air.

# 27%

reduction in Hydrogen Chloride emissions to air.



## Energy

# 77%

of all required electricity is generated onsite using renewable sources via the CHP biomass fueled boiler.

## Safety



# 841

safety observations reported by employees, visitors and contractors of which

**55** included an environmental element.

## Community



Through the Caledonian Employee Charity Fund, local charities have benefitted from

# £175,000

as charitable donations from employees.

## Health



# 100

employees took the opportunity to vaccinated for the Flu in 2020.

## Supply Chain



# 95%

of raw materials spend qualified against UPM Supplier and Third Party Code (wood not included)

UPM's target is to have 100% of raw material spend covered by UPM Supplier and Third Party Code by 2030. In 2020 96% of raw material spend was covered by the Code.

## Employment



Caledonian Employed

# 276 People

Total persons at Caledonian Paper

### Annual Shut 2020

**547** number of external employees involved in the annual shutdown in March 2020.

**29,270** hours worked by contractors during annual shutdown.

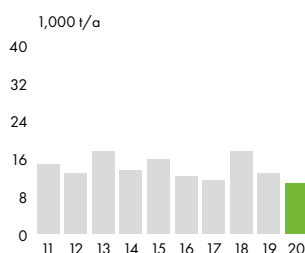
# Air



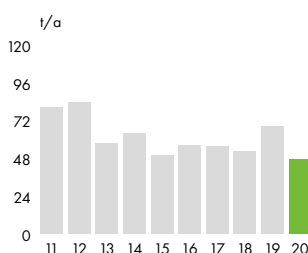
The CHP boiler had a 97% operating rate excluding the annual maintenance shut with a generation output from the turbine at 23.6MW. There were three instances of elevated carbon monoxide levels which required reporting to the Scottish Environmental Protection Agency, each of these occurrences were only for a one hour period and were not significantly above the emission limit value of 150mg/Nm<sup>3</sup> with the occurrence in December 2019 having a one hour reading of 150.8mg/Nm<sup>3</sup>. These incidents were all primarily as a result of pockets of poorer quality fuel and were recovered quickly by the operator to bring all emissions back within permit limits.

Work continued with the optimisation of the dosing boiler chemical addition rates which contributed to a significant reduction of 31% in the sulphur dioxide emissions to air. Other air emissions that significantly dropped from 2019 were Hydrogen Chloride (-27%) and total particulates (-22%). These reductions are attributed to the improvements in the fuel quality streams particularly that of the mixed biomass fuel with the supplier sourcing new feedstocks and upgrading the storage facilities whereby all material is now stored undercover. This limits any moisture fluctuations of the fuel stream and ensures a more homogeneous fuel for combustion.

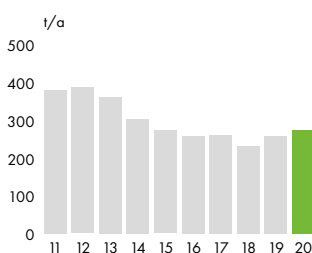
**Fossil carbon dioxide, CO<sub>2</sub>**



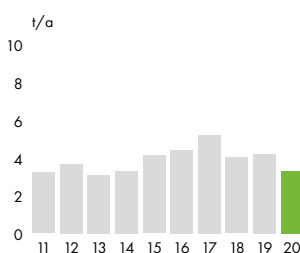
**Sulphur dioxide, SO<sub>2</sub>**



**Nitrogen oxides, NO<sub>x</sub>**

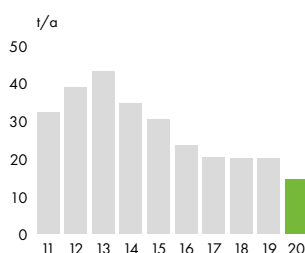


**Particulates**



t/a refers to tonnes per annum

**Chlorides, HCl**



# Waste

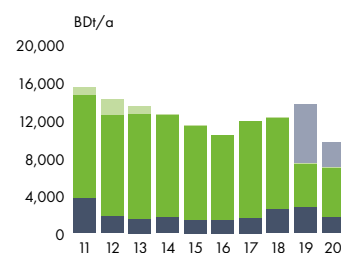


Due to a change in the waste classification of flyash Caledonian reported waste to landfill in 2019 for first time in many years. Although the site had waste to landfill in 2020 also, this was at a reduced quantity from the previous year as we have been working with several waste contractors to find a recovery option for the flyash. Trials using two of these recovery routes were successful and will be used in 2021 ensuring that no flyash is transferred to landfill.

Both recovery disposal routes are a significant step for Caledonian in achieving the 2030 Clean run target of zero waste to landfill.

The total amount of waste removed from site in 2020 dropped 19% from 2019 with the CHP boiler ash dropping 26% as a consequence of improving the biomass fuels.

**Solid waste**



- Ash (Landfill)
- Hazardous
- Ash (Recycled)
- Recycled/Recovered

All waste volumes based on dry tonnes

# Water



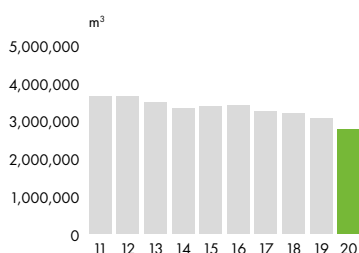
All water used onsite is municipal mains potable water. The water used in the papermaking process undergoes several recycling routes before being discharged to the effluent system. Caledonian has a primary effluent treatment plant for solids removal which is then combusted in the CHP boiler with the excess water effluent being discharged to the municipal secondary effluent treatment plant for further processing.

All water parameters were lower in 2020 in comparison to 2019. The coronavirus pandemic in 2020 had a negative impact on the paper production output with reduced volumes of paper produced and extended periods

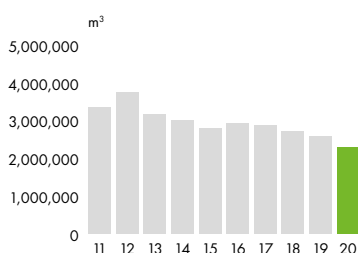
of downtime in the papermaking process. This in turn resulted in less volumes of water being required for the site. However, the CHP boiler continued to operate throughout the pandemic which consumes approximately 17% of the sites water intake and essential utilities are required during shutdown periods to ensure the safety of the plant.

Caledonian continues to focus on water consumption and effluent discharge for a reduction in all effluent parameters (volume, solids, COD and BOD). This has been achieved over the last two years and will continue to be an area of focus for 2021 and beyond towards UPM's 2030 environmental targets.

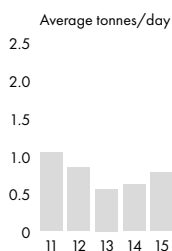
**Freshwater Consumption**



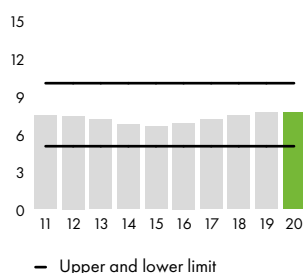
**Effluent Volume**



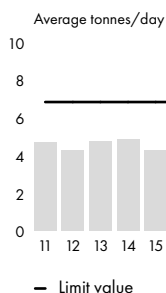
**Total suspended solids, TSS**



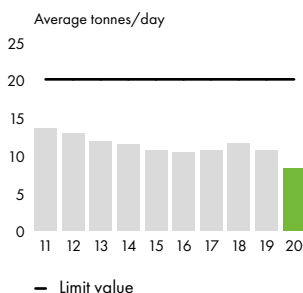
**Effluent PH**



**Biological oxygen demand, BOD<sub>5</sub>**



**Chemical oxygen demand, COD**



# Energy Efficiency

Mechanical Pulp used in the LWC product manufactured at Caledonian is produced by the Pressure Groundwood (PGW) process. This process area is the single biggest electrical consumer in the Mill and saving electrical energy when producing PGW pulp is a clear focus area. One of the four PGW grinders will be replaced with a new grinding surface which has been engineered in close cooperation with the supplier to produce a Mechanical Pulp which will allow the PGW process to be optimized to reduce overall electrical consumption.

With the increase in renewable generation sources electricity pricing has become less predictable over recent years with greater volatility seen in the market price. In addition charges for using electricity around the peak consumption times in winter have also increased. By using market signals and predictions the Mill has actively load shed electrical consumption during electricity peak price periods. Although electrical consumption overall has not changed from these actions, this has had the effect of contributing to reduce the overall grid peak load.

# Societal responsibility

## Biofore Share and Care Programme

UPM is involved in many causes and community projects supporting sustainable development and the prosperity and welfare of the communities in which we are active. Our work on this arena is clearly connected to our Biofore Strategy and responsibility targets. It is coordinated under the umbrella of our **Biofore Share and Care programme**.

The Biofore Share and Care programme comprises three forms of support: **sponsorships, donations and employee volunteering**. The support can be a monetary contribution, products, materials or employee volunteering. Local sponsorship is target-oriented and long-term involvement in the community where UPM operates.

Our focus is on activities and programmes that are relevant to our business, support innovation and sustainability, or promote local vitality and wellbeing. The four focus areas of UPM's Biofore Share and Care programme are: Reading & learning, engaging with communities, responsible water use and boosting bio-innovations.

In the early stages of the global coronavirus pandemic it became apparent that there was difficulty in sourcing suitable PPE in the local community. Caledonian had sufficient supplies of PPE and donated 10,000 face masks to the local charity Hansel Village.

The donation is part of UPM's Biofore Share and Care programme which is involved in many good causes and community projects supporting sustainable development and the prosperity and welfare of the communities in which UPM is active.

Technical Director, Gordon McLean, and Communications Co-ordinator, Liz Barrie, delivered the masks to Hansel's Operations Director Roddy Wright. The masks will be used by Hansel's customers when out and about in the community.

Liz Barrie added: "The scale of our global operation meant that we needed a large supply of protective equipment for our own employees due to the current global pandemic. UPM Caledonian were keen to donate to an Ayrshire organisation that would make good use of the additional facemasks. Hansel sup-

ports many Ayrshire families and we are delighted to have been able to help."

Hansel is one of Ayrshire's leading care organisations supporting people and their families living with a learning disability and those with autism. Further information is available from [www.hansel.org.uk](http://www.hansel.org.uk)

## Engaging with Society – Caledonian Charity Fund

Well-functioning stakeholder dialogue is a key component for success for UPM. We are committed to developing the vitality of the communities close to our operations through active co-operation and open dialogue with various stakeholders as well as, for example, through sponsorships and employee volunteering

We impact local communities and societies in many ways. Understanding the impact that we have is an essential component of our business success. In many locations, we are a significant employer, taxpayer and partner to local entrepreneurs, making positive contributions to the local economy. We apply several precautionary measures to mitigate and remedy potential negative environmental and social impacts on our surrounding communities.

The Caledonian Paper Charity Fund was established in 1995 with the ultimate aim of providing charitable donations to local groups to support their needs. Employees contribute a donation from their salary on a monthly basis with UPM Caledonian matching these contributions.

Throughout the year contributors to the scheme can nominate appropriate charities to be considered for a donation. Very often the suggested nominations are charities that have supported the family and friends of employees at a very difficult time. Annually all the nominations are considered and the committee will agree which charities will receive a donation from the fund.

In 2020 the following charities were selected

- Irvine Youth Forum
- South Ayrshire Foodbank
- The Duel Fitness Foundation
- Ayrshire Hospice
- Dirrans Centre Support Group
- Glasgow Children's Hospital Charity
- Islay Dog Rescue

## The Social Mobility Pledge

As part of our ongoing commitment to be a responsible employer, we have aligned ourselves to the Social Mobility Pledge to open up career opportunities to young people who might not otherwise be exposed to certain industries. Over 500 organisations have signed up to the pledge to commit to accessing and progressing talent from all backgrounds by:

- partnering with schools and colleges to provide coaching through quality careers advice, enrichment experience and/or mentoring to people from disadvantaged backgrounds or circumstances;
- providing structured work experience and apprenticeship opportunities to people from disadvantaged backgrounds or circumstances; and
- adopting open employee recruitment practices which promote a level playing field for people from disadvantaged backgrounds or circumstances.

It is great knowing that we are doing our part by helping make society a fairer place for people from all backgrounds and circumstances.





### Safety

Our goal in UPM is to be the industry leader in health and safety. Our clear objective is zero fatal and serious accidents. Safety is fully embedded in our daily activities and is not considered less or secondary than any other interest. We strive to reduce and eliminate accidents under our control through con-

tinuous improvement and effective risk management.

Our employees, as well as business partners and their employees, are required to adopt safe work practices and to comply with the rules and standards we have established.

Before accessing UPM production site, contractors get UPM safety training, which presents and demonstrates the basic safety requirements. This is complemented with a job specific safety induction and a permit to work.

## Organisational Structure and Emergency Organisation

Caledonian has systems in place for emergency preparedness and response which includes both environmental and OHS incidents. Operational procedures have been established which take into account both normal and abnormal situations which may arise throughout the organisation and addresses the requirements to control, minimise and prevent any negative impacts. These procedures are available to all personnel within the Quality First database.

We have an established emergency response team (ERT) on each shift who are multi skilled and trained to assess and contain a variety of incidents. If the situation or incident can be managed by the team itself then they shall do so with retrospective contact being made with the relevant authorities and agencies.

The main concern of the ERT team is to ensure all personnel are under no threat from the situation or incident and if there

are any casualties to carry out initial first aid. The next step for the teams is to protect the surrounding areas from any possible contamination or damage from the incident, ie storm drain system in the event of a chemical or oil spillage.

All incidents are recorded on the global One Safety system and are investigated to prevent recurrence.

# Environmental parametres

The figures related to production as well as raw material and energy consumption are published as aggregated figures on group level in the UPM Corporate Environmental and Societal Responsibility Statement.

		2018	2019	2020
<b>Production capacity</b>	Paper LWC	245,000t	250,000t	250,000t
<b>Raw materials (BDT)</b>	Pulp Pigments Process Chemicals	See UPM Corporate Environmental and Societal Responsibility Statement for more information		
<b>Energy</b>	Biogenic Fuels Fossil Fuels Electricity			
<b>Emission to air</b>	Sulphur Dioxide, SO <sub>x</sub> Nitrous Oxides, NO <sub>x</sub> Carbon Dioxide, CO <sub>2</sub> (fossil) Particulates	52t 232t 17,367t 4t	68t 257t 12,790t 4t	47t 273t 10,559t 3t
<b>Water intake</b>	Fresh Water	3,187,311 m <sup>3</sup>	3,061,181 m <sup>3</sup>	2,773,748 m <sup>3</sup>
<b>Discharges to water</b>	Chemical Oxygen Demand (COD) Total Suspended Solids Biological Oxygen Demand (BOD <sub>5</sub> ) Effluent Volume	4,222t 254t 1,789t 2,735,476 m <sup>3</sup>	3,903t 186t 1,714t 2,581,041 m <sup>3</sup>	3,009t 172t 1,220t 2,290,046 m <sup>3</sup>
<b>Non-hazardous waste and Side Products <sup>1)</sup></b>	Side Products	0t	0t	0t
	Waste to recycling, energy recovery and or composting (See below for breakdown)	12,219t	6,167t	6,995t
	– Boiler Ash	9,718t	4,461t	5,223t
	– Bark & Other Wood Residues	773t	1,025t	1,159t
	– Domestic		294t	242t
	– Sanitary Waste	1,079t		
	– Other	649t	387t	192t
	– Metals			178t
	Waste to Landfill (Flyash)	0t	6,118t	2,596t
<b>Hazardous Waste</b>	Hazardous Waste	31t	22t	37t
<b>Land use</b>	Total use of land Total sealed area on site Total nature-oriented area on site	33ha  33ha	33ha 10ha 33ha	33ha 10ha 23ha

<sup>1)</sup> All waste are dry weight.



# Performance against targets in 2020

TARGET	ACHIEVEMENT	COMMENTS
<b>1 Clean Run Deviations</b> Zero category 3, 4 or 5 deviations	No	2 category 3 deviations were reported in 2020 – 2 instances of carbon monoxide emission limit value being above the PPC permit limit due to fuel fluctuations resulting in boiler instability.
<b>2 Key Efficiency targets to be included in area business Plans</b>	Partial	– Some progress made on tracking energy, COD and water use per tonne of paper produced – Will be followed through into plan for 2021 and include heat recovery.
<b>3 Update roadmap to reach 2030 sustainability targets. Look at short and long term proposals to achieve 2030 targets</b>	Partial	This is ongoing into 2021. Further studies will be required on the technology required to close any gaps in achieving the 2030 targets.

## Environmental Targets 2021

TARGET
<b>1 Zero deviations against existing legislative requirements, including PPC permit and Water consent levels</b>
<b>2 Update roadmap to reach 2030 sustainability targets. Look at with and without investment proposals to achieve 2030 targets</b> – Create individual site Roadmap to reach 2030 targets <ul style="list-style-type: none"> <li>• Without Investment</li> <li>• With Investment</li> </ul> – Communication of 2030 Roadmap
<b>3 Ensure efficiency targets are included in area plans including MWh/t, m<sup>3</sup>/t, compressed air and heat recovery and COD</b> – Electricity < 1.4MWh/t – Effluent < 11.55m <sup>3</sup> /t – Water < 13.46m <sup>3</sup> /t – COD < 11 t/d (monthly Ave)
<b>4 Review mill waste streams e.g., Ash, Coating Colour, Effluent and Packaging</b>



### Validation statement

As an accredited environmental verifier, Inspecta Sertifiointi Oy has examined the evidence of procedures and processes of the environmental management system and UPM Caledonian Environmental and Societal Responsibility 2020 statement.

On the basis of this examination, the environmental verifier has herewith confirmed on 2021-04-26 that the UPM Caledonian Environmental and Societal Responsibility 2020 statement is in compliance with UPM's internal reporting guidelines, and there is no evidence of non-compliance with applicable legal requirements relating to the environment.

We reduce the world's reliance on fossil-based materials by developing renewable and responsible products and solutions in all our businesses. **UPM Biofore – Beyond fossils.**



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

**UPM Caledonian**

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