PAPER EXCELLENCE

2021 SUSTAINABILITY REPORT

Building Strong Relationships

Cover Photo: Paper Excellence Canada marked the National Day for Truth and Reconciliation with a $10,000 donation to the Tseshaht First Nation. The funds will go towards an Alberni Indian Residential School (AIRS) commemoration/ memorial to honour all the children who attended the school, and those that did not make it home.

Catalyst Crofton mill in Crofton, BC

TABLE OF CONTENTS

EXECUTIVE MESSAGE

We know our sustainability successes (and shortcomings) are important to our stakeholders and the public. This second sustainability report again provides detailed data and insights on our performance as we continue to improve sustainability in all aspects of our operations.

This is the first barge of chips produced by Atli Chip Limited Partnership. Atli Chip is a new First Nations partnership for Paper Excellence Canada. It is majority owned by Atli Resources LP with minority stakes owned by Paper Excellence Canada and Wahkash Contracting Ltd. Atli Resources LP is the forestry arm of the 'Namgis First Nation.

Paper Excellence Canada thanked all the agencies involved in extinguishing the Cloverdale fire and protecting Prince Albert Pulp Inc. from potentially catastrophic fire damage.

"Doing rather than saying" is an apt characterization for a year in which we moved beyond stated intents and strategies – as important a starting point as they are – to concrete actions and outcomes, with a particular focus on building strong relationships.

Indigenous and Other Communities

This is most true with respect to Indigenous relations. After initiating dialogue and defining our corporate Commitment to Indigenous Peoples in 2020, we began to achieve significant results in 2021.

That included a business partnership with the 'Namgis First Nation of Vancouver Island. We concluded framework agreements with other Indigenous groups that may become a basis for additional partnerships and pursuit of shared interests. And we took important steps, such as joining the Canadian Council for Aboriginal Business, to help strengthen our capacities to sustain this momentum.

We were also able to do much more to support both our Indigenous and non-Indigenous neighbours across our operating regions. This occurred through a structured program of community investments, the value of which increased significantly in 2021.

Environment and Safety

Strong relationships are founded in part on our fundamental commitments to environmental responsibility and safe operations.

Carbon emissions remained a priority despite the massive reductions we've already achieved in recent decades. With support from the British Columbia government we launched new reduction initiatives at four mills. We also continued to rigorously track the sustainability of our sources of wood fibre.

We continued to work to embed safe processes and practices more deeply and comprehensively, although we fell short of targeted safety improvement. We also did more to recruit and develop our workforce, and did what we could to mitigate worker impacts when business conditions made a mill's indefinite curtailment necessary.

Foundations for Growth

We had the benefit of somewhat more stable market and operating conditions, free of impacts like those of the malware attack in 2020. Although the ongoing pandemic significantly disrupted supply chains, and unprecedented weather extremes in British Columbia added to the challenges.

We rose to those challenges while aligning production with market trends and opportunities for business growth; and while also advancing projects and proposals – at Prince Albert and Northern Pulp – that we see as the foundation for a larger platform of operating mills in the future.

> Well done is better than well said.
>
> Benjamin Franklin

Building Strong Relationships

All of these and many other things we did in 2021 reflect our commitment to strong relationships with stakeholders – a diverse group that radiates outward from our employees, to operating communities and Indigenous groups, to our suppliers and customers, and indeed to anyone with an interest in the impacts and net value creation associated with our business.

We were gratified with external validation of our efforts, including being once again named one of the 50 Best Corporate Citizens in Canada by Corporate Knights.

We will say this in closing: That we believe our actions in 2021 delivered meaningful advances, to the benefit of both our business and all of the key stakeholders with whom we have relationships; and that we are committed to doing more in 2022 and beyond.

We continue to rigorously track the sustainability of our sources of wood fibre. To learn more, turn to page 21 of this report.

ABOUT PAPER EXCELLENCE

Paper Excellence Canada is a diversified Canadian manufacturer – founded in 2006 – of purpose-made pulps and of printing, writing and packaging papers, along with specialty food grades.

Paper Excellence Canada operates five mills in British Columbia and Saskatchewan, a west coast distribution centre and a chipping plant, and a seedling nursery and woodlands in Nova Scotia. The Paper Excellence Group (of which Paper Excellence Canada is a business unit) also has a presence in France and Brazil and in 2021 completed its acquisition of Domtar, which operates as a stand-alone entity.

Paper Excellence Canada seeks continuous improvement in manufacturing processes, cost structure and market position; while minimizing environmental impacts and building strong and mutually beneficial stakeholder relationships.

Catalyst Paper, a Paper Excellence company, was honoured in 2021 with a SmartWay® Excellence Award from the US Environmental Protection Agency (EPA) as an industry leader in freight supply chain environmental performance and energy efficiency. Catalyst partners with SmartWay carriers that share the same values in environmental leadership. These carriers invest in energy efficient lightweight equipment that allows Catalyst to plan and load equipment to maximum capacity to reduce the number of trucks and railcars shipped. Left to right: Geoff Le Vecque, Manager, Operations (Surrey Distribution Center); John Dumbovic, Manager, Truck and Rail; and Aman Banwait, General Manager (Surrey Distribution Center) pose with their 2021 SmartWay Excellence Award.

RECOGNITION FOR PAPER EXCELLENCE CANADA

ONE OF THE **CORPORATE KNIGHTS 50 BEST CORPORATE CITIZENS** IN CANADA

This is the 14th time the company has been included in this authoritative ranking.[1]

BEST 50 CORPORATE CITIZENS

SMARTWAY® EXCELLENCE AWARD US ENVIRONMENTAL PROTECTION AGENCY 2021

Recognizing industry leadership in freight supply chain environmental performance and energy efficiency.

SmartWay EXCELLENCE AWARDEE 2021

[1] 50 Best recognition prior to 2021 was accorded to Catalyst Paper, which is now wholly owned by Paper Excellence.`

ABOUT THIS REPORT

This is Paper Excellence Canada's second sustainability report, focusing on calendar 2021 and encompassing all its operations. While the acquisition of Catalyst Paper became effective on March 15, 2019, the historical performance of Catalyst operations has been incorporated into data from prior to that date (unless otherwise noted). Paper Excellence Canada is privately held and does not publicly disclose financial performance.

This voluntary reporting initiative is intended to present a holistic perspective on our sustainability priorities, initiatives, challenges and opportunities. We have exercised due diligence in compiling and internally verifying the data and factual characterizations contained in this report, but no external or other auditor has been engaged to verify its contents. We do not provide any assurances with respect to the stakeholder, employee and other subjective perspectives included in this report.

While this report has been developed with reference to current standards and best practices relating to sustainability disclosure, Paper Excellence Canada does not declare it to be in accordance with any specific guidance of that type. Stakeholders can provide feedback to: info@paperexcellence.com

Mill-specific environmental performance data can be found in the appendix, beginning on page 45.

For insight on sustainability highlights from our sister company Domtar's pulp and paper business, please visit: www.domtar.com/en/how-we-work/sustainability-domtar

GOVERNANCE AND RISK MANAGEMENT

Paper Excellence Canada is privately held, and one of four business units of the international Paper Excellence Group. Currently, a three-person operating committee – comprised of Paper Excellence leadership team members – collectively discharges the oversight entrusted to boards of directors in publicly traded companies.

The operating committee takes a broad perspective on the factors influencing corporate success, and pursues long-term sustainability strategies – consistent with the accommodation of stakeholder interests and with definitions of value delivery extending beyond financial metrics alone. It signs off on policies, strategies and goals related to sustainable development; receives regular reports on environmental and other key performance indicators; and has reviewed and approved the content of this report.

Day-to-day execution of risk-management – relating to climate change, broader environmental performance and other matters addressed in this report – is delegated to senior executives and subject matter experts. Among other processes, they maintain a comprehensive risk register and ensure risk-specific management strategies are in place.

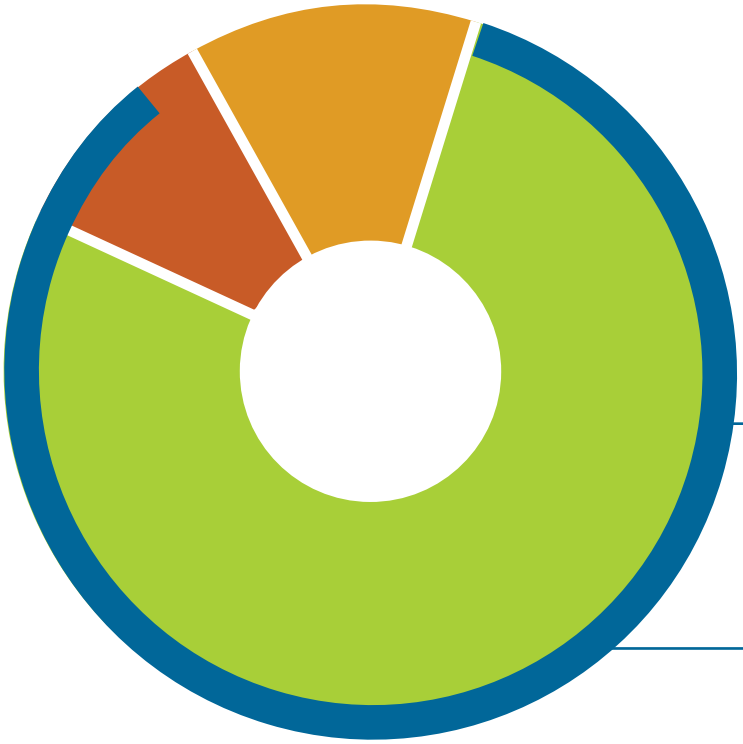
All Paper Excellence Canada employees are required to adhere to a corporate Code of Conduct which addresses a range of matters relevant to the sustainable conduct of our business, including occupational health and safety, respectful workplaces and environmental stewardship.

Key identified climate change-related risks include damage to assets due to the increased incidence of severe weather, reduction in access to wood fibre supplies, and the commercial impact of rising carbon prices. Climate-related scenario analysis is factored into the consideration of major capital expenditures.

As a manufacturer of renewable, low-carbon and biodegradable products, Paper Excellence Canada sees business opportunity associated with sustainability-driven purchasing decisions, and embeds this in its product development and marketing strategies.

In April 2022, Stew Gibson was appointed Chief Operating Officer for Paper Excellence Canada. Mr. Gibson has expressed his commitment to ensuring that Paper Excellence Canada continues to develop its corporate sustainability.

PERFORMANCE HIGHLIGHTS



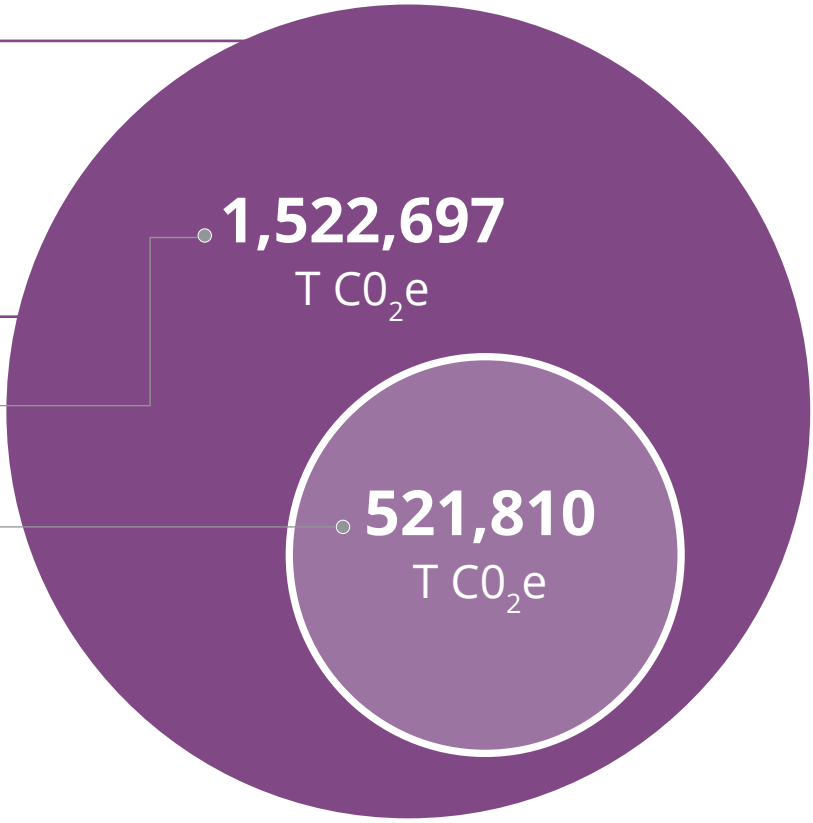
ENERGY MIX IN 2021

Total Usage = 65.3 million GJ

- **ELECTRICAL ENERGY** (PURCHASED) 8.1 MILLION 12%
- **BIOMASS FUELS** 49.0 MILLION 75%
- **FOSSIL FUELS** 8.2 MILLION 13%
- **TOTAL RENEWABLE ENERGY USE**

85% OF OUR TOTAL ENERGY USE IN 2021 WAS RENEWABLE

WE HAVE REDUCED OUR GREENHOUSE GAS EMISSIONS BY 66% SINCE 1990*



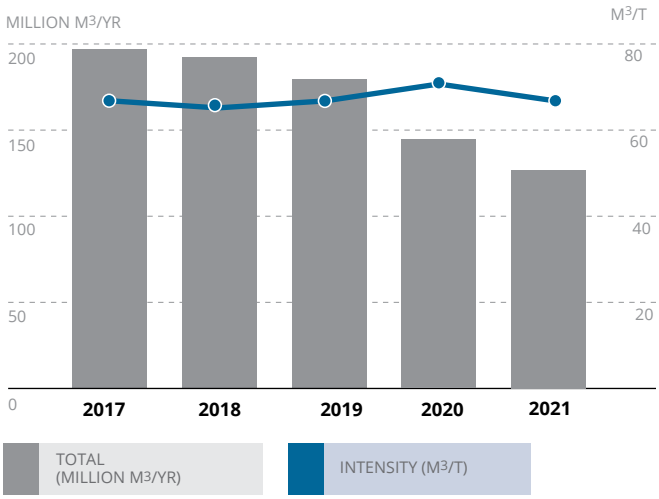
Direct/Scope 1 GHG Emissions From All Mills, 1990

Direct/Scope 1 GHG Emissions From All Mills, 2021

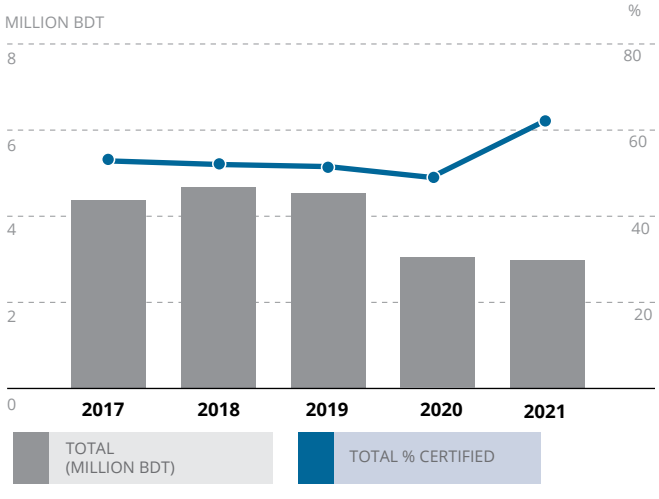
GREENHOUSE GAS EMISSION REDUCTION

*Paper Excellence Canada follows the World Resources Institute's Greenhouse Gas Corporate Accounting and Reporting Standard. When a mill closes, those emissions are removed from our baseline measurement. As a result, the emission reductions reported here are only reductions achieved at operating mills. These reductions have been achieved even with the addition of Meadow Lake Mechanical Pulp, which was not built in 1990 and thus isn't part of our baseline measurement.

WATER USE
(PROCESS WATER DISCHARGES)

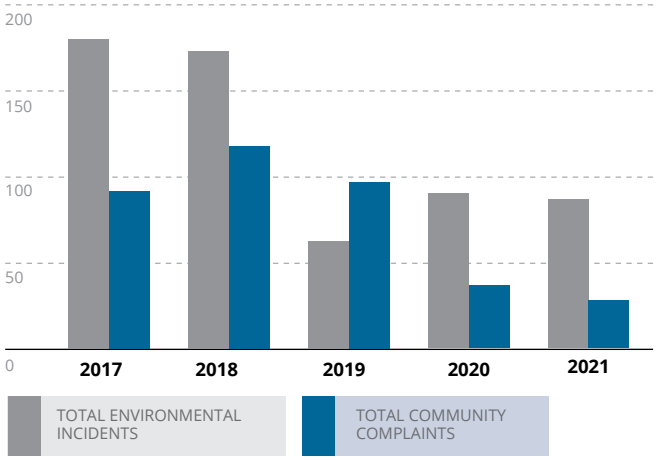


WOOD FIBRE USE & CERTIFICATION

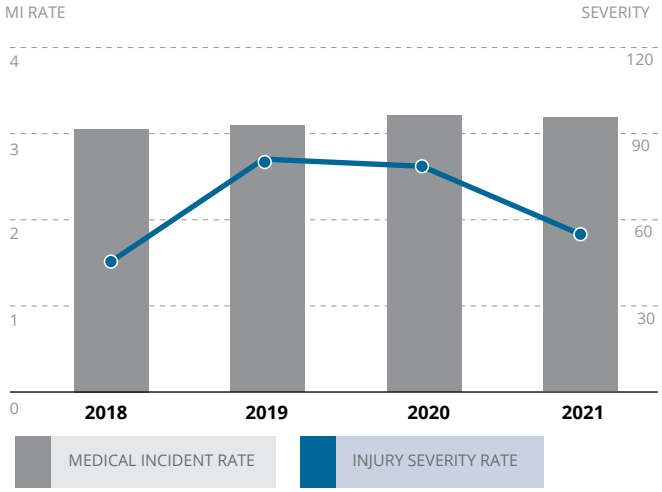


BDT = Bone Dry Tonne

ENVIRONMENTAL INCIDENTS & COMMUNITY COMPLAINTS



EMPLOYEE SAFETY



Incidents requiring medical attention and number of work days lost due to injury, both per 200,000 hours worked.

Catalyst Crofton mill in Crofton, BC

COMMUNITY INVESTMENTS

Signature Investments in Four Focal Areas	• Indspire • Canadian Council for Aboriginal Business – Women Indigenous Entrepreneurship Fund • Pacific Salmon Foundation • United Way	**$200,000**
Post Secondary Education (local and industry-relevant programs)	• Vancouver Island University • British Columbia Institute of Technology • College of the Rockies • Saskatchewan Indian Institute of Technology • Saskatchewan Polytechnique	**$320,000**
Local Mill Donations Programs	• General Community Support • Local Indigenous Community Support • High School Scholarships	**$243,000**

TOTAL **$763,000**

We strengthened our Indigenous relationships, and continued building internal capacity to respond to Truth & Reconciliation Calls to Action and to incorporate UNDRIP into operational activities. **(See page 35)**

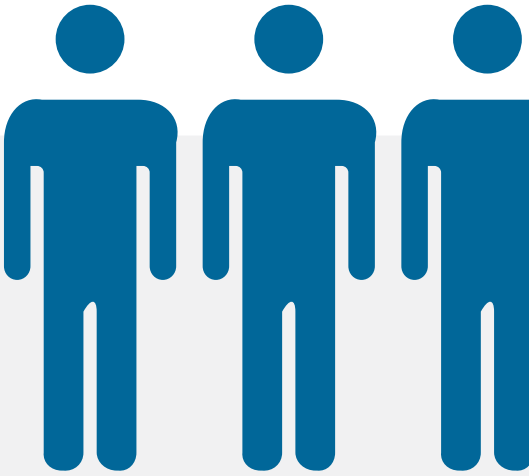
OUR ECONOMIC CONTRIBUTION

$2.1 Billion
Contribution to GDP

$4.8 Billion
Total Annual Economic Activity Created

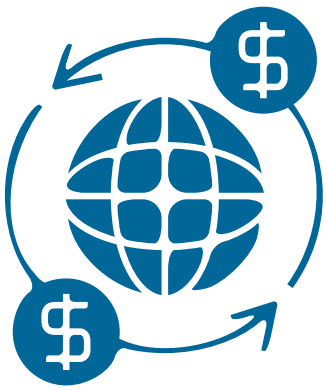
All economic contribution figures on this page include direct, indirect and induced benefits, and are from an analysis based on 2019 data. See page 39 for the breakdown.

$1.0 Billion
Labour Income



13,000+
Jobs Created

Direct: 2,396
Indirect: 7,063
Induced: 3,595



$591 Million
Public Revenues

WATER USE AND IMPACTS

IMPACTS AND OUTCOMES

Our mills rely on fresh surface water sources such as rivers and lakes. We monitor water use mainly with reference to the amount of "process water" (or effluent) that we release.[2] Because this water was used in the manufacturing process and has been in contact with materials such as wood fibre and chemicals, it goes through multi-stage treatment processes.

At the point where effluent is released back into the surrounding environment, it is monitored to ensure it meets regulatory standards. Smaller volumes of water used to cool equipment is released untreated because it doesn't come into contact with the production processes.

In 2021, our intensity of process water use was down by nine per cent, and we achieved noteworthy intensity reductions (50 per cent for AOX) with respect to three key effluent-quality parameters. Increased production of unbleached product was a contributing factor.

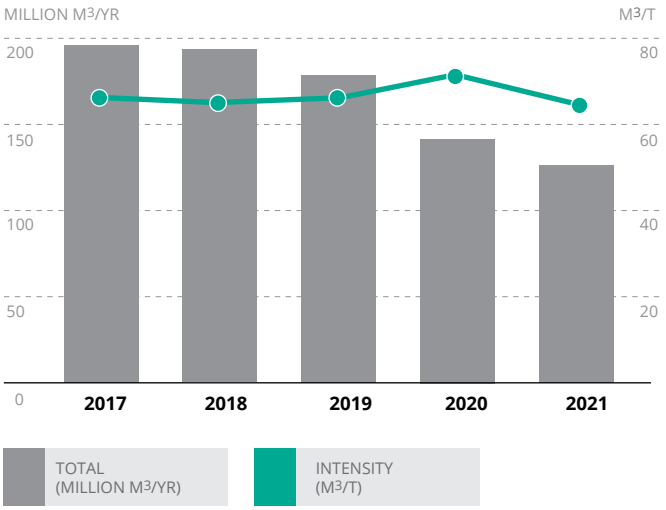
All our mills are located in areas identified as having a low overall water risk,[3] and the vast majority of all water used within our mills is returned to the surrounding environment.

Ashley Popovich, Environmental Specialist at Catalyst Port Alberni, is responsible for ensuring compliance for environmental regulation and permits for the site—air, water and landfill. She manages monthly and annual reporting requirements for BC's Ministry of Environment and Environment and Climate Change Canada. Below is an aerial photo of Catalyst Port Alberni.

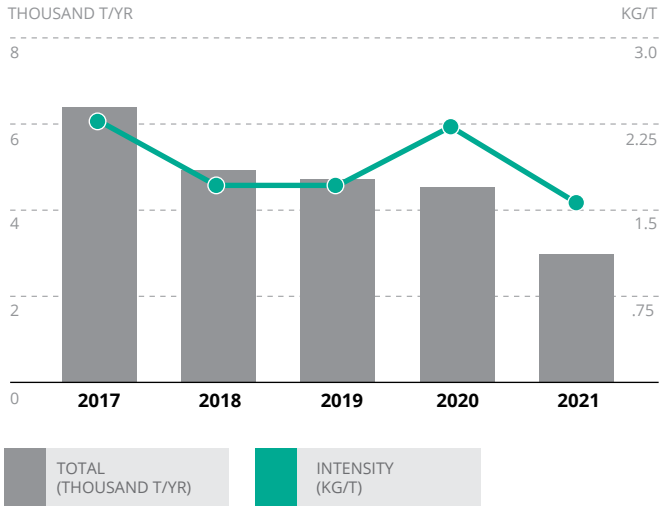
[2] Our Meadow Lake mill – where a different production process requires less water – recycles all its process water back into its manufacturing processes in a closed loop and does not release any effluent.

[3] According to the World Resources Institute Aqueduct Water Risk Atlas.

PROCESS WATER DISCHARGES

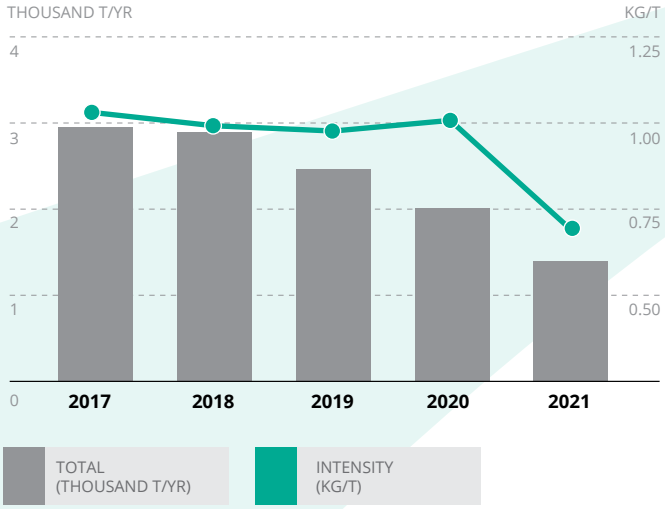


TOTAL SUSPENDED SOLIDS (TSS)

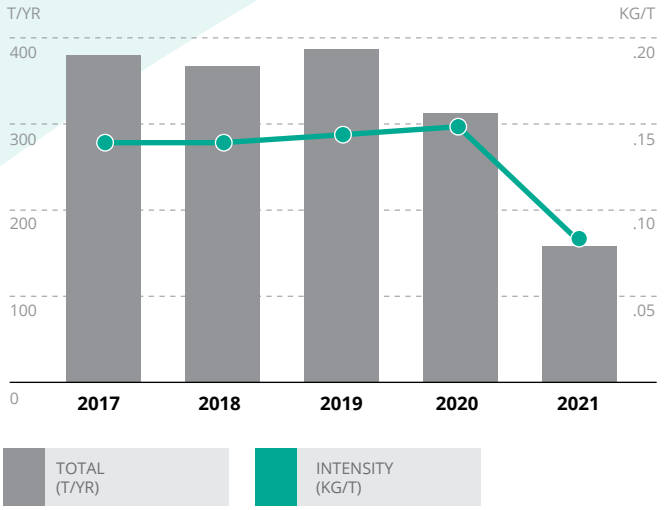


Consistent with standard industry practices, Paper Excellence Canada tracks water use based on treated effluent discharges, consisting of water used in manufacturing processes. In 2021 an additional 40.3 million m^3 of water was used for cooling purposes, but did not come into direct contact with production processes.

BIOCHEMICAL OXYGEN DEMAND (BOD)



ADSORBABLE ORGANIC HALIDES (AOX)



A NOTE ON MEASURES

We present both "total" (or "absolute") and "intensity" measures. "Total" measures represent the amount of a substance released in units such as cubic meters or tonnes. "Intensity" is arrived at by dividing each total by the number of tonnes of product manufactured during 2021. Since production levels can change significantly from one year to another (although variation from 2020 to 2021 was moderate), intensity measures generally provide a truer indication of environmental performance.

2021 ACTIONS AND INITIATIVES

- Port Alberni made repairs to a wooden flume that carries treated effluent to an optimal surface discharge point on the Alberni Inlet. Placement of a watertight pipe within the existing structure (originally built in 1956) is budgeted for 2022.
- Multiple mills adjusted effluent treatment processes based on production changes including expanded specialty paper grade production and re-introduction of unbleached pulp at Howe Sound. Among other impacts, production changes can alter the level of nutrients available to the microbes used to improve effluent quality.
- Crofton repaired several weak points in the line supplying fresh river water to the mill. While this will safeguard against future line failures, an accident during early-stage excavation caused a leak and siltation into nearby fish-bearing water, requiring a report to regulatory authorities.
- Crofton continued to operate a weir controlling water flow into the Cowichan River, balancing multiple ecological and water-use needs. Rainfall proved sufficient to avoid the need to pump water from Cowichan Lake in the summer. Catalyst remained involved in a multi-stakeholder process through which a design for a higher weir was completed and an impact assessment initiated.
- A risk of effluent pond overflow at the former Chetwynd mill (closed in 2016) was addressed by building eroded berms back up to heights that meet regulatory standards for storage capacity.

PRACTICES AND PERSPECTIVES

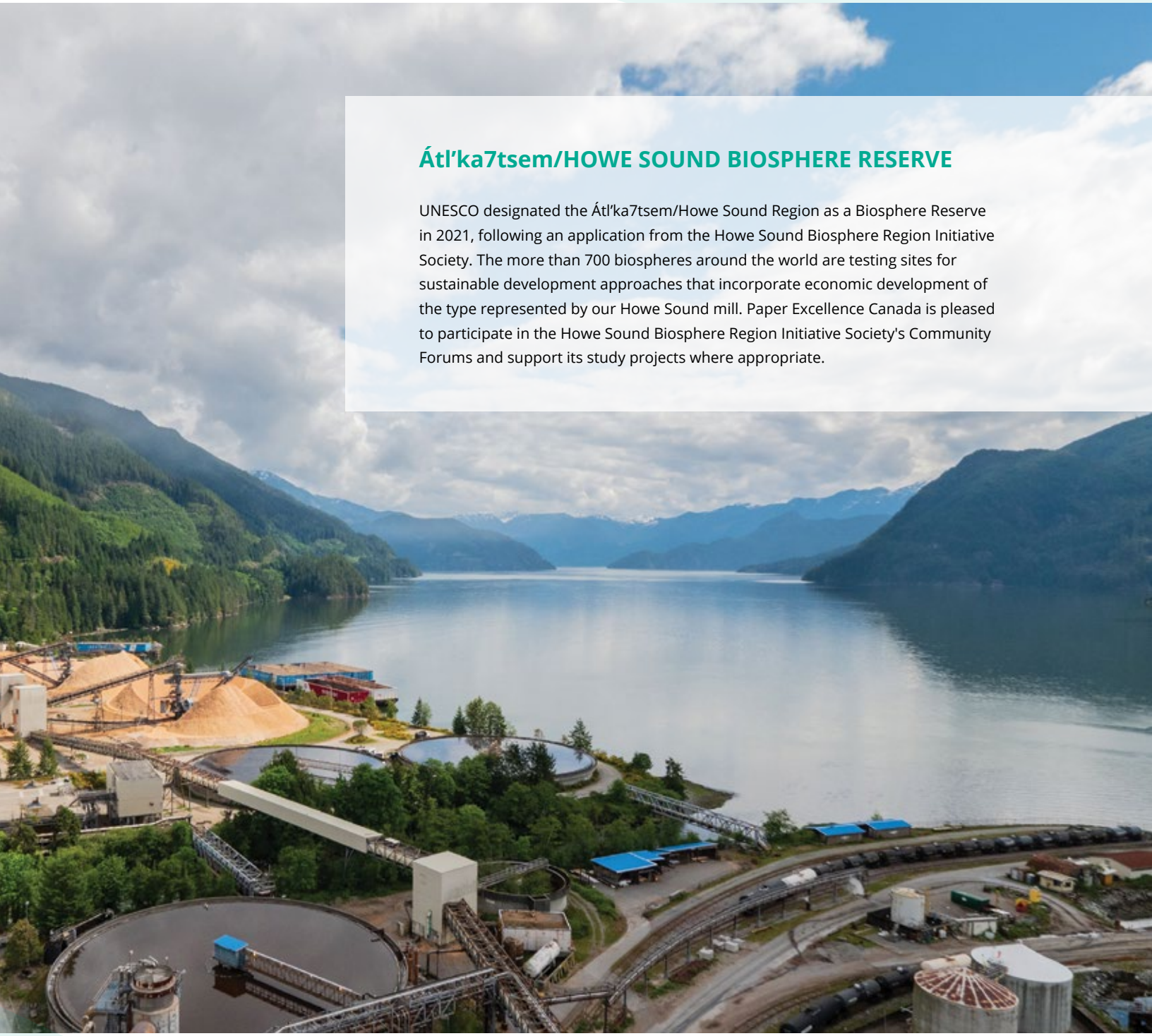
FROM DROUGHT TO INUNDATION

After dealing with drought conditions in recent summers, in 2021 our coastal BC mills had to manage the impacts of record-breaking rainfalls, part of a pattern of extreme weather the region experienced.

SEE STORY 1 MINUTE READ

FOCAL POINTS IN 2022

- Further improve operational and infrastructure resiliency in the face of extreme weather events, through projects such as dredging the effluent spill pond at Howe Sound (a project planned for 2021 which was delayed due to weather-related transportation interruptions).
- Advance permit amendments to better align requirements with current infrastructure and operations – including authorization to operate wells as a back-up water source at Skookumchuck when runoff conditions interfere with use of the mill's usual river water intake.



Átl'ka7tsem/HOWE SOUND BIOSPHERE RESERVE

UNESCO designated the Átl'ka7tsem/Howe Sound Region as a Biosphere Reserve in 2021, following an application from the Howe Sound Biosphere Region Initiative Society. The more than 700 biospheres around the world are testing sites for sustainable development approaches that incorporate economic development of the type represented by our Howe Sound mill. Paper Excellence Canada is pleased to participate in the Howe Sound Biosphere Region Initiative Society's Community Forums and support its study projects where appropriate.

ENERGY USE, CARBON MANAGEMENT AND AIR EMISSIONS

IMPACTS AND OUTCOMES

In 2021, Paper Excellence Canada mills emitted two-thirds less carbon than in 1990 (excluding reductions due to mill closures and including emissions from a mill that was not yet constructed in 1990). Large-scale switching from fossil fuels to carbon-neutral biomass fuel and a continuous focus on energy efficiency have been key to achieving this.

Our ongoing low-carbon journey will be accelerated by financial support awarded to Paper Excellence Canada in 2021 by the CleanBC Industry Fund, a provincial government program that invests a portion of carbon tax revenues into businesses working on emission reduction projects.

The five selected projects are projected to result in annual reductions of some 50,000 tonnes of carbon dioxide equivalency, representing about a 10 per cent reduction in our Scope I carbon footprint. Project objectives are as follows:

Howe Sound Pulp & Paper mill in Port Mellon, BC

Howe Sound

- Re-configure pollution control equipment to enable dust emissions to be recycled back into the lime kiln without first being turned into a slurry which then has to be dried.
- Modify the design of the boiler floor and make other operational changes at a power boiler to enable use of more biomass and less natural gas.[4]

Crofton

- Significantly reduce steam use, mainly in relation to “black liquor” processing, through a combination of three process improvements.[5]

Port Alberni and Skookumchuck

- Separate projects at these mills are designed to improve the continuity of feeding carbon-neutral biomass into power boilers, to support preventative maintenance with reduced reliance on natural gas.

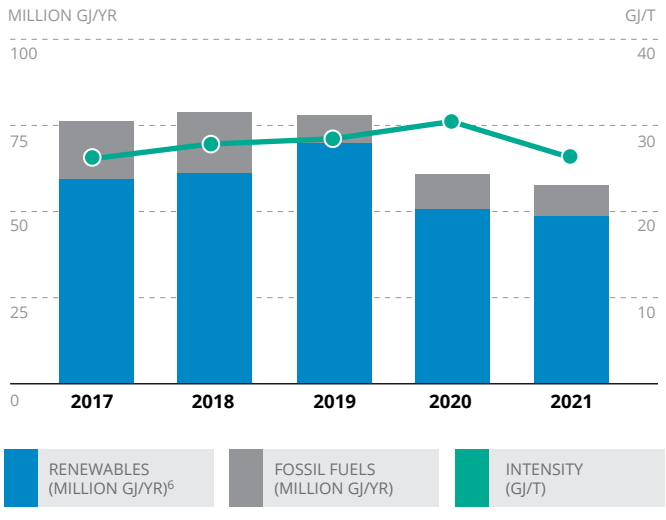
cleanBC
our nature. our power. our future.

[4] Power boilers generate steam, either for use within the manufacturing process or to generate electricity.

[5] Black liquor is the byproduct created after the cellulose fibres needed to make pulp are extracted from woodchips. It is concentrated and burned as an energy source in mills.

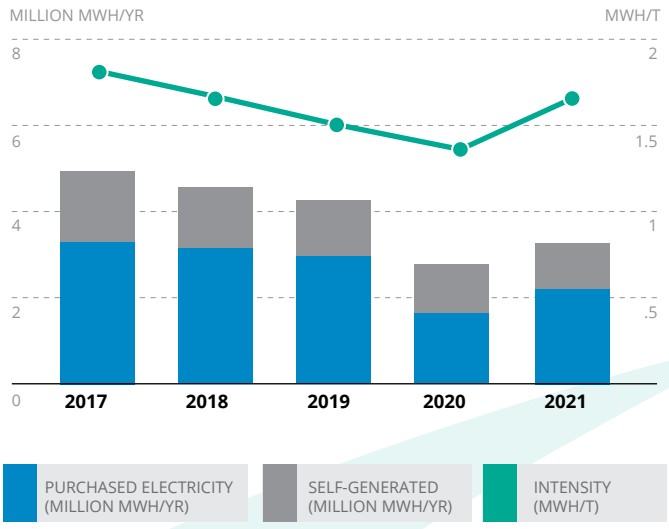
Howe Sound Pulp & Paper mill in Port Mellon, BC

FUEL ENERGY USE



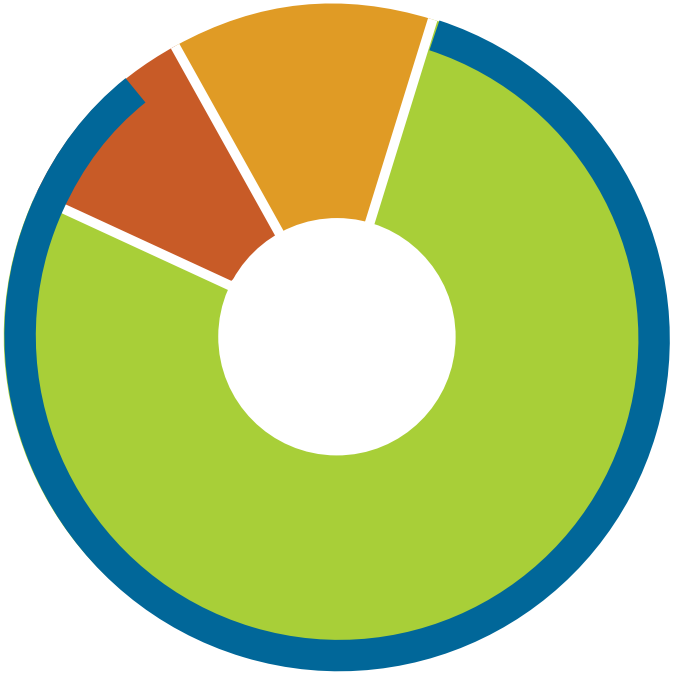
[6] Estimated value for 2017.

ELECTRICITY USE



Self-generation figures are net of electricity sales.

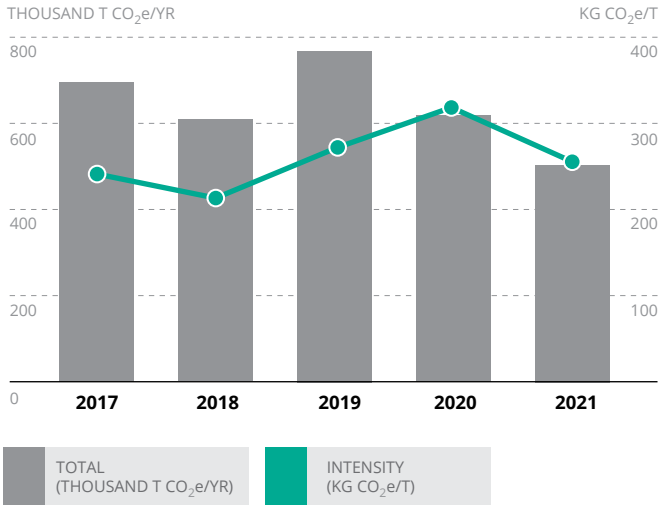
ENERGY MIX IN 2021



Total Usage = 65.3 million GJ

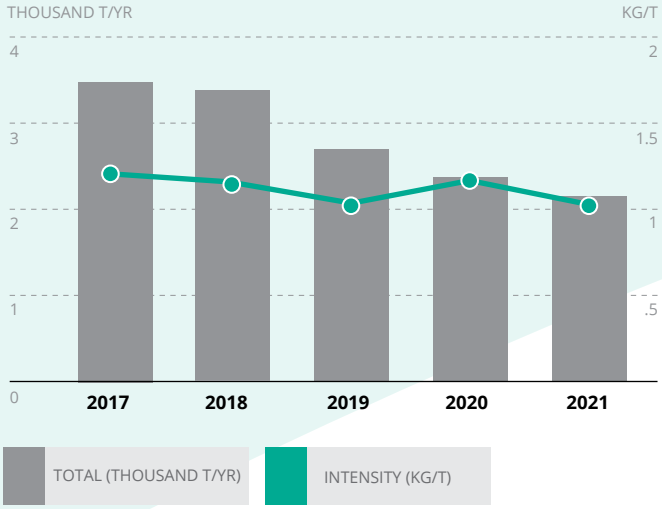
ELECTRICAL ENERGY (PURCHASED) 8.1 MILLION 12%	**BIOMASS FUELS** 49.0 MILLION 75%
FOSSIL FUELS 8.2 MILLION 13%	**TOTAL RENEWABLE ENERGY USE**

GHG EMISSIONS (DIRECT/SCOPE 1)

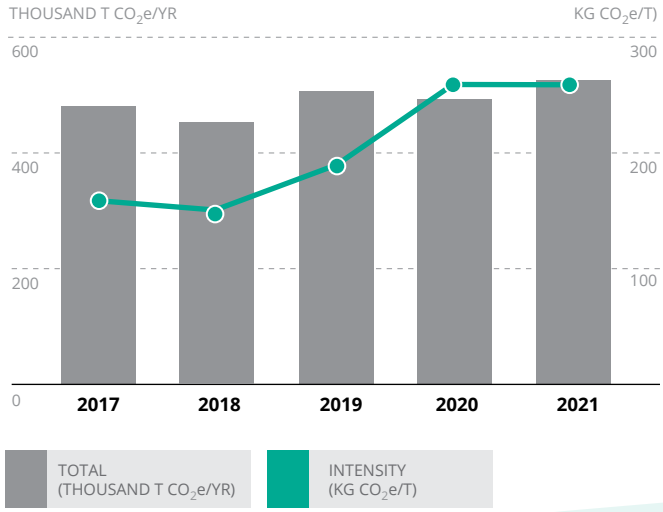


Scope 1 emissions are those coming directly from our mills and other sources that we own or control. Scope 2 emissions are those associated with the generation of the electricity that we buy.

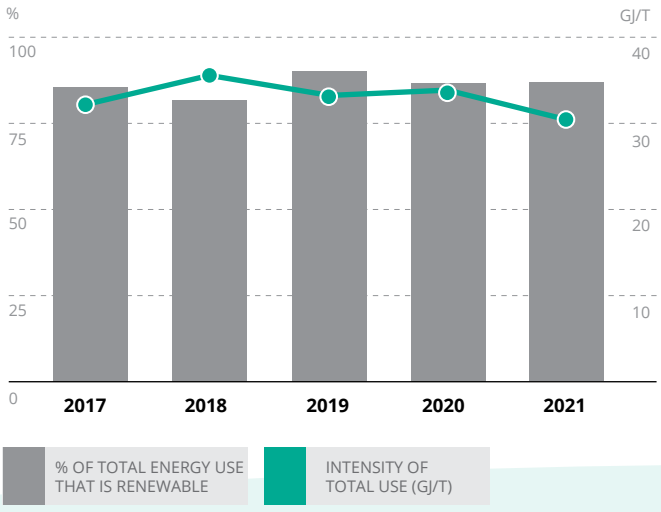
NITROGEN OXIDES



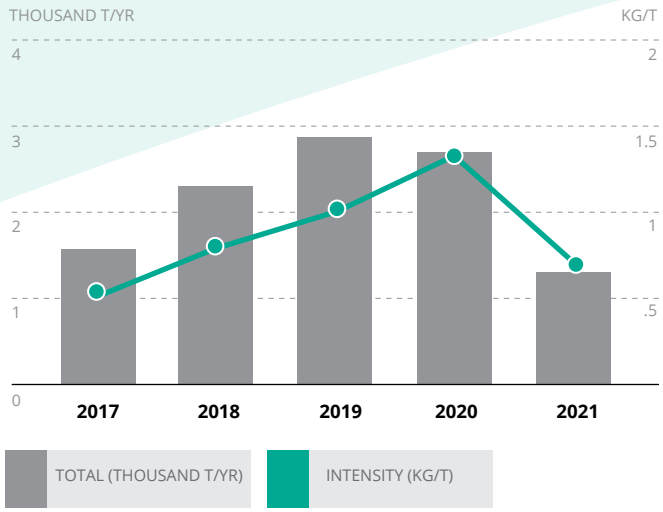
GHG EMISSIONS (INDIRECT/SCOPE 2)



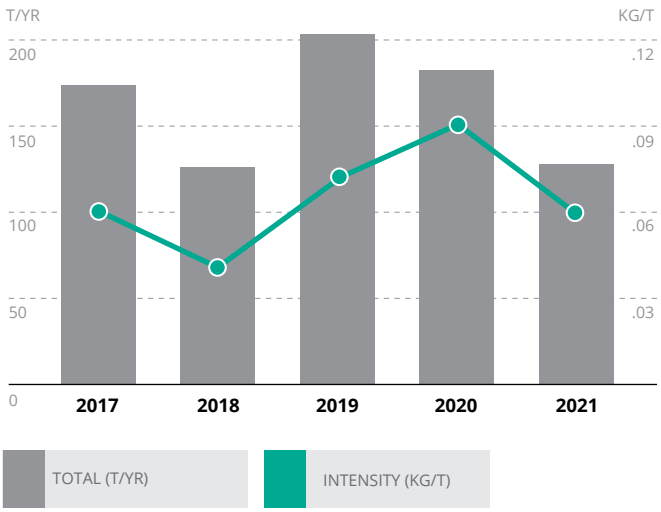
RENEWABLE ENERGY & INTENSITY OF ENERGY USE



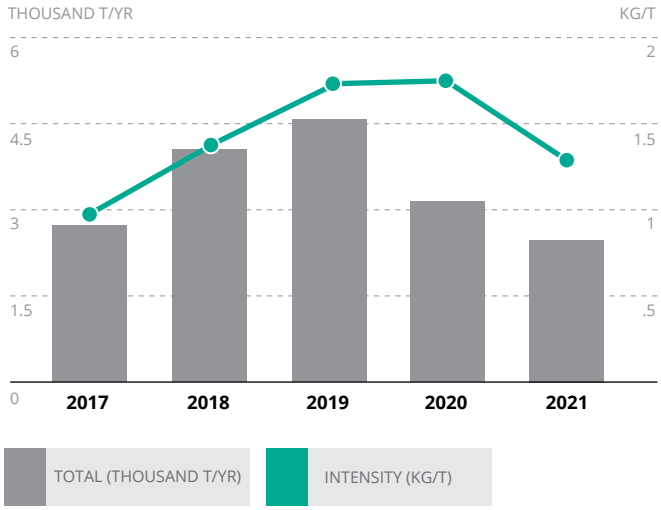
AIR PARTICULATES



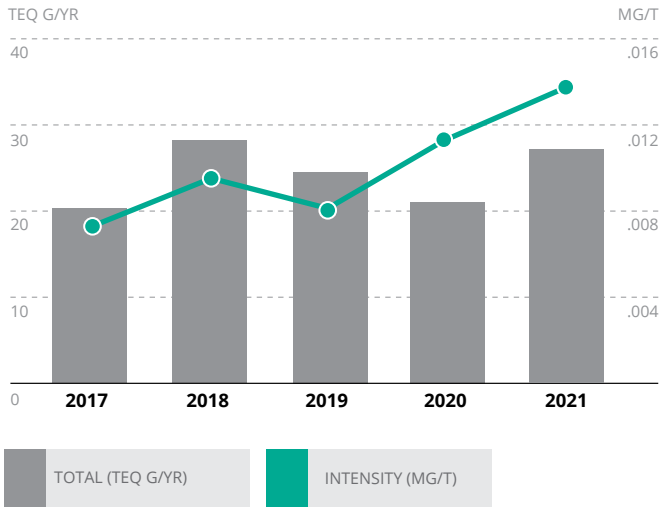
TOTAL REDUCED SULPHUR (TRS)



SULPHUR DIOXIDES



DIOXIN & FURAN RELEASES



Dioxin and furan figures include releases into air, effluent and landfill. Results are heavily influenced by factors such as operating conditions and fuel characteristics at the time of testing and are often highly variable. All operation-specific emissions in 2021 were below a Canadian federal standard for dioxin toxicity equivalence.

2021 ACTIONS AND INITIATIVES

Beyond our focus on carbon, we control, monitor and seek to reduce other substances in mill air emissions – substances which in sufficient concentrations would have the potential to create negative health, environmental or aesthetic impacts.

- Following non-compliances in 2021, Skookumchuck has set lower alert levels for operators, and taken other steps in relation to visible emissions (opacity) resulting from high concentrations of small air-born particles (particulates) in power boiler emissions. A permit amendment is also being sought to reflect the normal opacity variability resulting from use of carbon-neutral biomass fuel.

- While its emissions of particulates remained well within permit limits, Port Alberni started a major repair project on a power boiler precipitator (a key piece of emissions-control technology).

- Port Alberni is preparing a permit amendment application at the request of the local Air Quality Council, to significantly lower allowable particulate emissions. The mill operates below even the amended level, but this will provide added assurance in an area where there are multiple sources of particulates and where atmospheric conditions sometimes hold them at low elevations.

- The Crofton mill continued its work to address a long-standing issue relating to chlorine dioxide emissions. An amended permit is expected to be issued in 2022, implementing a more appropriate measurement methodology, and a work plan will better ensure compliance with what will remain a stringent emissions limit. Additional operator training, and improved analysis of required chlorine dioxide application levels were initiated in 2021. A task force will complete numerous additional actions and capital investments in 2022, and promising results were being seen in the first quarter.

- Howe Sound is undertaking an ongoing multi-year capital project involving rewiring, a transformer upgrade and duct replacement. This is intended to address multiple non-compliances in 2021 relating to “trips”, or interruptions of electrical flows within its recovery boiler precipitator.

FOCAL POINTS IN 2022

- Maintain a focus on improved efficiency of thermal energy use in mills, particularly in the form of fossil fuels such as natural gas, in contrast to efforts in earlier years that focused on electricity use.
- Leverage financial incentives associated with ongoing carbon reductions. These include, in particular, a sliding scale through which we can access larger carbon tax rebates in BC based on low carbon intensity at our operations in comparison with global peers.
- Leverage the benefits of Paper Excellence Canada's new membership in FPInnovations, a not-for-profit research and development agency, including access to technologies and processes to assist in the improvement and execution of our decarbonization strategy.

> Canada's pulp and paper sector has been a leader in carbon emission reductions for decades. We established 1990 baselines and goals after the Kyoto Accord and we're one of just a few industrial sectors that have demonstrated significant reductions since then.

Graham Kissack,
Paper Excellence Canada, Vice President, EH&S and Corporate Communications quoted in *Pulp & Paper Canada*

WOOD FIBRE AND SOLID WASTE

WOOD FIBRE: ENVIRONMENTAL ATTRIBUTES

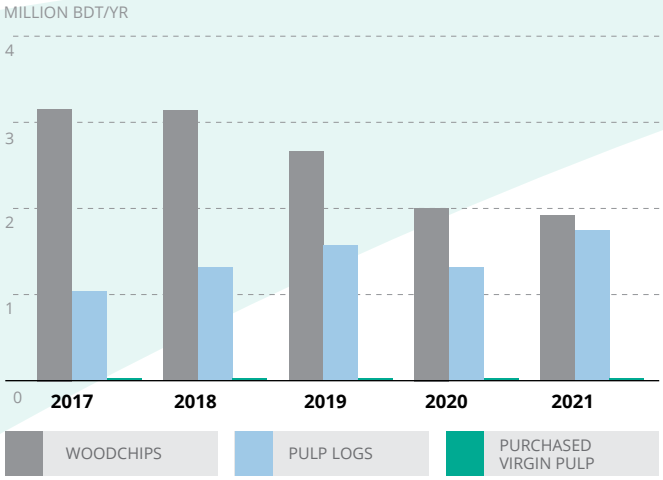
The fibre we use to manufacture pulp and paper is primarily in the form of woodchips, which are generated at sawmills as a waste product during lumber production. Almost all of the rest is pulp logs which are not suitable for lumber or other uses. We have rigorous systems to ensure our fibre comes from sustainably managed forests.

All of our fibre sources are verified as "low-risk" using our Due Diligence System, which is updated and verified annually during our independent third-party certification audits.[7] Our Due Diligence system is a key tool of our chain of custody systems and is applicable to all three certifications.

We maintain chain of custody certification with multiple, globally recognized voluntary certification schemes, including Forest Stewardship Council® (FSC®) (FSC-C004353); Programme for the Endorsement of Forest Certifications (PEFC) (PEFC/26-31-43); and Sustainable Forest Initiative® (SFI®) (SFI-01629). These chain of custody certifications enable us to track fibre from its point of origin through to delivery to a customer. Assuming that a customer has its own validated chain-of-custody system, it can carry the certification assurance right through to end use (including on-product labels).

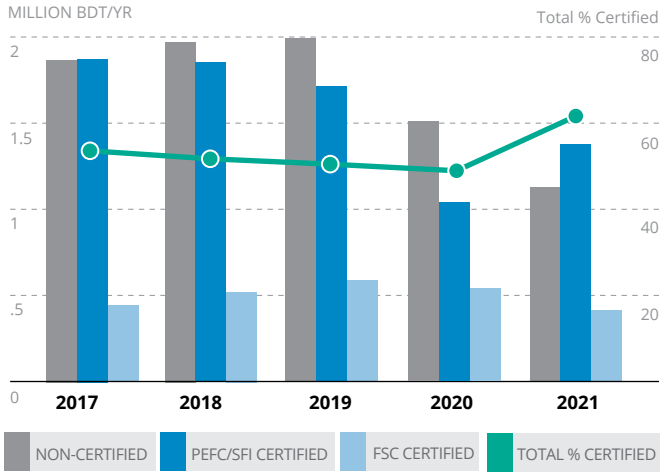
We also have the flexibility to meet emerging and tailored customer needs, such as combined assurance of, for example, verification of low risk under our Due Diligence System and certified as per one of our chain of custody certifications.

FIBRE USE BY TYPE (BDT)



BDT = Bone Dry Tonne

CERTIFIED FIBRE (BDT)



[7] That is, there is a low risk that wood from these sources is in any of several unacceptable categories, including wood from illegally harvested forests or forests with high conservation values.

> Paper Excellence Canada is proud to be a part of the Atli Chip Limited Partnership. As a company, we understand the importance of being good neighbours and greatly value our relationships with Indigenous communities and their business ventures. This is an exciting opportunity to build mutually beneficial business partnerships and support community investment.

Quinton Hayward,
Chief Forester, Paper Excellence Canada

The Atli Chip LP facility is shown here. See pages 23-24 for more detail.

WOOD FIBRE: AVAILABILITY

Availability of woodchips and pulp logs is a function of the level of forest-harvesting and sawmilling in the supply regions our mills draw from.

Our BC mills purchase fibre on the open market. Fibre availability improved in 2021, after material shortages in 2020, although extreme weather resulted in significant disruptions to fibre transportation routes between interior and coastal BC.

In November 2021, the BC provincial government deferred harvesting on 2.6 million hectares of old growth forests, and began consulting Indigenous groups on future management plans. This will likely impact fibre availability from 2022 onwards, and the BC Council of Forest Industries has projected the potential for significant mill closures and resulting job losses over time.

Paper Excellence Canada is pursuing various strategies to secure its long-term fibre supply. This includes pursuit of business partnerships with Indigenous groups, emulating our long-standing association with the Meadow Lake Tribal Council (MLTC) in Saskatchewan. Mistik Management Ltd. is a forest management company and an equal partnership of our Meadow Lake operation and NorSask Forest Products, which in turn is owned by the MLTC.

BC First Nations are taking on a larger role in the industry and increasingly securing tenure rights to harvesting. In 2021 we struck an important new Indigenous partnership through acquisition of an interest in the Atli Chip Limited Partnership, a whole-log chipping operation. This initiative also reflects our complementary strategy to support fuller use of all available wood fibre within harvested areas.

LOOKING AHEAD TO A DECARBONIZED ECONOMY

Through our engagement in collaborative forums such as FPInnovations and the BC Pulp and Paper Bio-Alliance, we are engaged in early-stage consideration of longer-term opportunities for fuels and other high-value bioproducts derived from forest biomass. With the right policy environment, we may be competitively positioned to produce such products, which in turn have the potential to contribute to economy-wide carbon reductions.

FPInnovations

BC Pulp & Paper BIO-ALLIANCE

PRACTICES AND PERSPECTIVES

ACHIEVING 100% UTILIZATION

DORIAN UZZELL, PRESIDENT, WAHKASH CONTRACTING

Specialized salvage operations on northern Vancouver Island are helping maximize usage of harvested forest fibre and supplying fibre to Atli Chip Limited Partnership, our newest Indigenous business partnership.

HEAR DORIAN'S COMMENTS

PRACTICES AND PERSPECTIVES

INDIGENOUS INDUSTRY PARTICIPATION EXPANDS

Indigenous groups in BC are becoming more active across the forest-products value chain, and securing more of the benefits for their own communities. This is often done through creative partnerships, such as the one behind the Atli Chip Limited Partnership in which Paper Excellence has an interest.

SEE STORY 1 MINUTE READ

SOLID WASTE MANAGEMENT

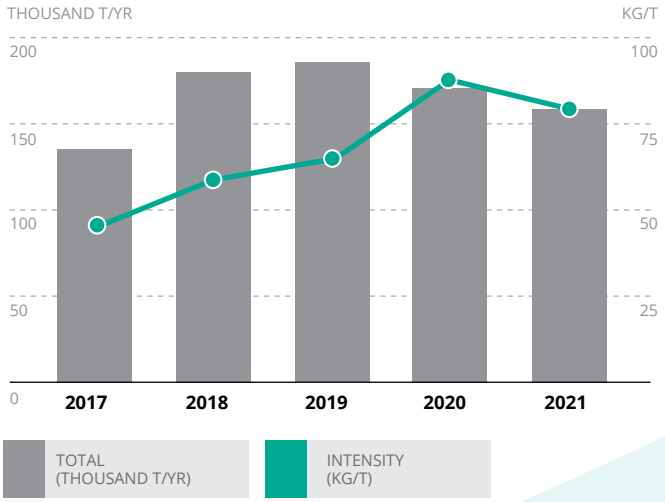
Our mills turn large volumes of post-industrial waste (woodchips) into value-added pulp and paper. Consistent with the pursuit of a more circular economy, we focus on minimizing our own waste streams, and on maximizing the extent to which our residuals can be put to beneficial use.

- Meadow Lake installed equipment to dry the fibre residuals that are a byproduct of effluent treatment, so that they can be more efficiently incinerated. Efforts continue to improve dryer efficiency, particularly during cold temperatures, but the mill made progress in reducing its fibre residual stockpile.
- Meadow Lake also continues to optimize the operations of the Olivine burner in which its fibre residuals and wood waste are incinerated. In 2021, this involved sourcing wood waste from other nearby mills to ensure a balance of materials that enables effective fibre residual combustion.
- The Crofton mill conducted a thorough review of its long-closed Swallowfield landfill and its potential impacts, at the request of the Penelakut First Nation and federal regulators. It has been issued an amended permit, setting out new monitoring and further assessment requirements.

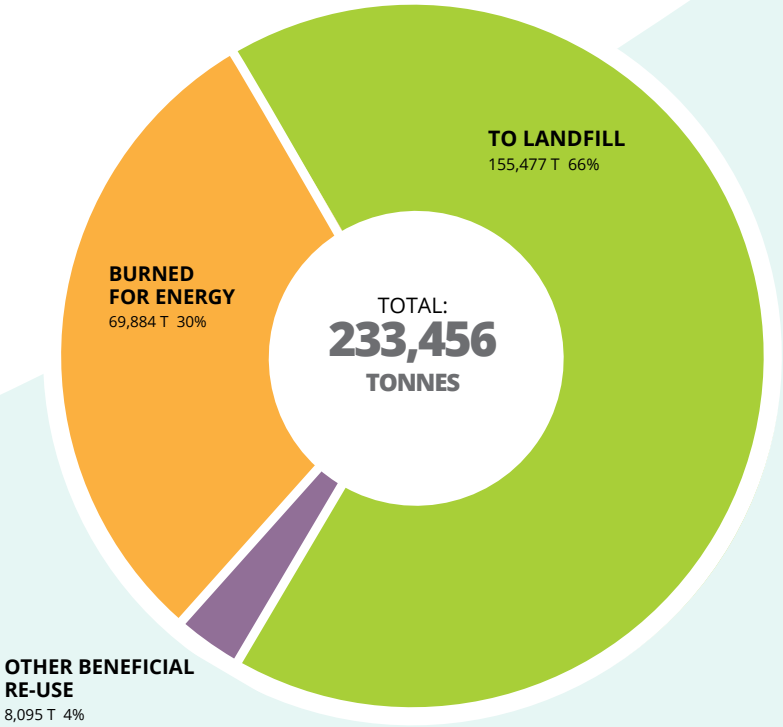
Catalyst Crofton uniquely manages its wood ash landfill utilizing piles to reduce the generation of wind-borne dust.

The $3.1 million investment in a pulp residual dryer installation at our Meadow Lake facility reduced the water content in our fibre residuals from 60 per cent to 40 per cent and allows us to incinerate the residuals in a cleaner and more efficient manner.

SOLID WASTE TO LANDFILL

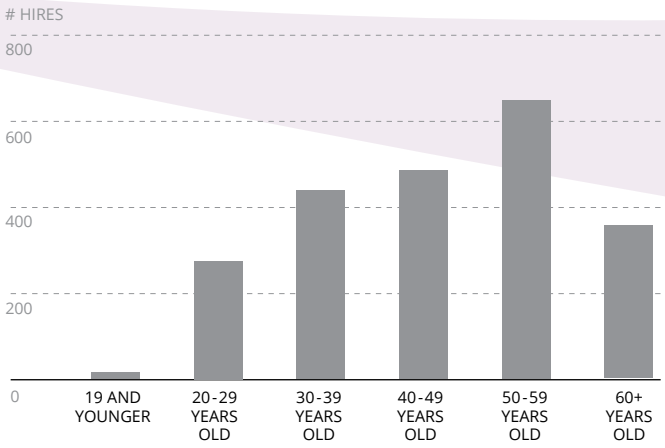


2021 SOLID WASTE DISPOSITION



WORKFORCE PROFILE AND WELLBEING

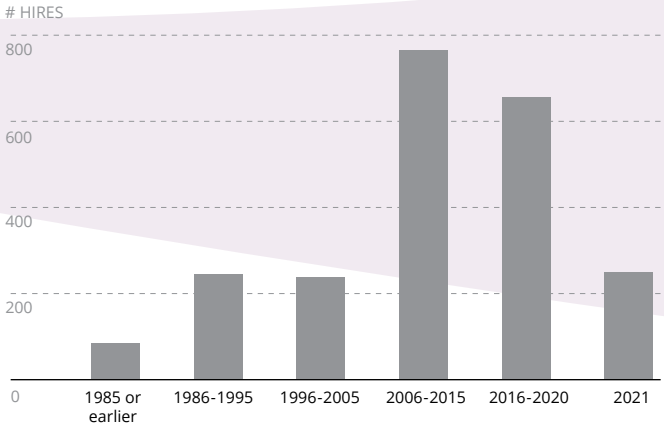
EMPLOYEE PROFILE: AGE (ALL EMPLOYEES)



701 Staff Employees
1,528 Union Employees
Total: 2,229

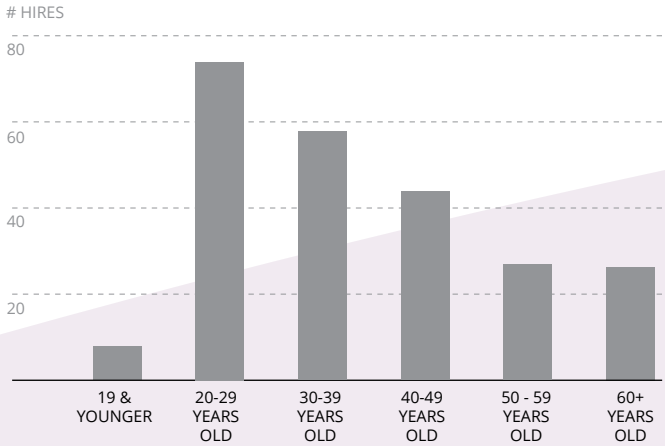
62 in Executive Roles
2,167 in Other Roles

EMPLOYEE PROFILE: TENURE (YEAR OF HIRE)



Employee profile data are as of early February 2022, but do not vary materially from year-end 2021; employees at the curtailed tiskʷat mill are included.

EMPLOYEE PROFILE: AGE (NEW HIRES IN 2021)



108 Staff Employees
130 Union Employees
Total: 238

11 in Executive Roles
227 in Other Roles

Paper Excellence Canada implemented a new human resources information system in 2021, which is still being fully populated. Additional workforce demographic data will likely be available in future years.

WORKFORCE TRANSITIONS

Operations at the tiskʷat mill were first temporarily and then indefinitely curtailed during 2021 due to market conditions, impacting 206 employees. As of March 2022, the company had been able to transfer about 10 percent of employees into other roles within Paper Excellence Canada.

Paper Excellence Canada also offered bridging assistance to early retirement for 46 individuals at its coastal BC mills. Provided with government assistance, this is a means of adjusting the workforce age profile and required a significant investment to recruit new individuals into the vacated positions.

One collective agreement was concluded with a bargaining unit of PPWC members at the Howe Sound mill, with all eight of Paper Excellence Canada's other collective agreements due to be re-negotiated in spring 2022.

> I have been learning as much about the mill as I can and working to understand how the important process parameters differ between kraft and mechanical pulping, the effluent system and the different chemical application points in the mill. I would like to learn and work in as many different areas of the mill as possible to gain a deeper understanding of the process.

Skylar Stephenson,
Engineer in Training, Howe Sound Pulp & Paper

EMPLOYEE TURNOVER

	2017	2018	2019	2020	2021
Retirements	5.0%	6.1%	5.5%	2.5%	3.0%
Voluntary Departure	4.1%	4.9%	3.1%	5.3%	7.5%
Total	**9.1%**	**11.0%**	**8.6%**	**7.8%**	**10.5%**

Pre-acquisition figures (March 15, 2019) include Paper Excellence Canada only.

UNIONS REPRESENTING OUR EMPLOYEES

Unifor	Crofton, Howe Sound, Port Alberni, Surrey Distribution Centre, tiskʷat
Public & Private Workers of Canada (PPWC)	Crofton, Howe Sound, Skookumchuck, West Coast Chip Plant
United Steelworkers	West Coast Chip Plant
MoveUP	Crofton

Unions are listed in descending order of size of membership within Catalyst's workforce.

PRACTICES AND PERSPECTIVES

TURNING TOWARDS PAPER ALTERNATIVES

KENNY GOSWAMI, E.I.T. PROCESS ENGINEER, CATALYST PORT ALBERNI

The need for lower-impact packaging is one factor that gives this recent participant in our Engineer in Training Program confidence in his future in the pulp and paper industry.

HEAR KENNY'S COMMENTS

The Mechanical Pulp department at Port Alberni mill was presented with its award for winning second place in the Continuous Excellence Mill Skill Development Activity competition, for its Peroxide Bleach Brightness Gain project.

PRACTICES AND PERSPECTIVES

AN EXTRA SET OF EYES OUT THERE

BARRY TOUZIN, PPWC LOCAL 15 - SKOOKUMCHUCK PULP, JOINT SAFETY COMMITTEE CO-CHAIR

Trained safety captains drawn from the unionized workforce at the Skookumchuck mill are one of the broad-based efforts to achieve better safety outcomes.

HEAR BARRY'S COMMENTS

WORKFORCE DEVELOPMENT

Recruitment and retention initiatives included the launch of an Engineer in Training Program. Graduates were recruited from engineering schools across the country for 18-month terms, split between pulp- and paper-related assignments, and provided with significant mentoring.

Many program participants have already been hired permanently, and the program will be expanded and potentially extended to other business units. Continuous Excellence: Ideas that Work, a company-wide program to encourage and incent employee-driven business improvement also continued.

The company employed 28 apprentices in various trades at the end of 2021.

WORKFORCE SAFETY

Incidents requiring medical attention (treatment beyond a first aid visit) occurred in our workplaces at the same rate in 2021 as in 2020, despite a target for significant reduction. Injuries resulting in time away from work occurred at a higher rate, while injury severity was down significantly.

Process Safety Management (PSM) systems were implemented at all mills in 2021, and new process safety engineers hired. This methodology focuses on prevention of low-likelihood but potentially high-severity incidents, through careful assurance that equipment maintenance and operation meet safety standards, and that process changes are fully managed to mitigate risk.

While much of the foundational work was done in 2021, full operationalization of PSM will extend into 2022 – through further hazard identification, comprehensive training, data analysis, auditing and other steps – and across a full five-year workplan involving a cycle of program review and refinement.

Mill-specific initiatives included implementation and expansion of a safety captain program at Skookumchuck, through which non-supervisory employees take on formal roles in helping to manage safety issues; and a focus at Crofton on supporting a daily pre-task hazard assessment process.

Employee health was further safeguarded during the ongoing COVID-19 pandemic, through continued transmission-control measures, and development of formal exposure control plans and an updated communicable disease prevention plan.

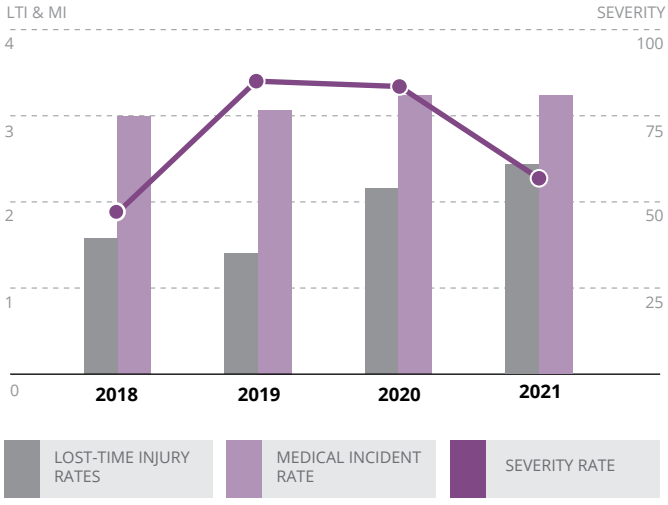
PRACTICES AND PERSPECTIVES

OUTSTANDING SAFETY PERFORMANCE AT SURREY DISTRIBUTION CENTRE

While corporate wide-safety performance continues to call for considerable improvement, there were operational highlights in 2021 – including a long-running track record of zero lost-time injuries at the Surrey Distribution Centre.

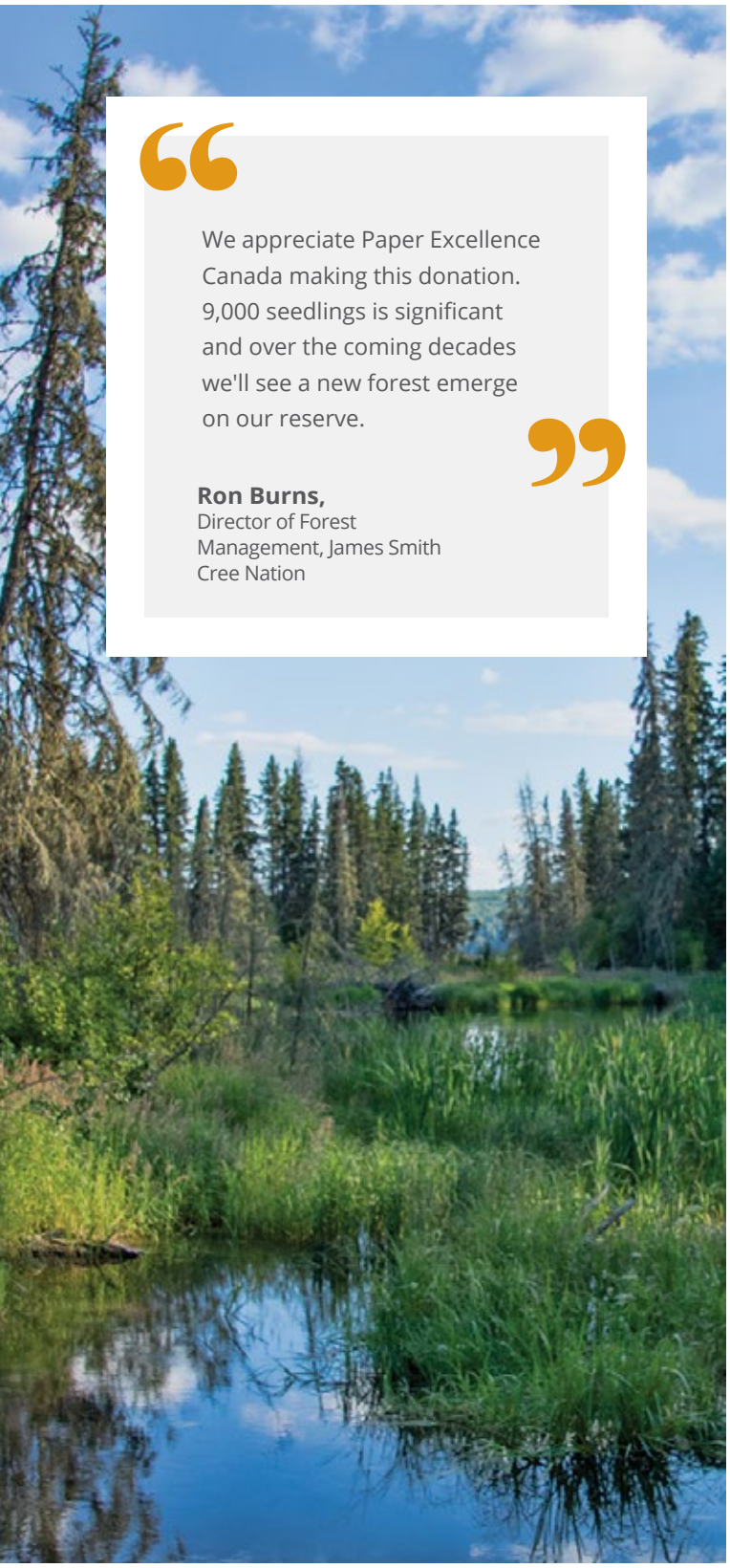
SEE STORY 1 MINUTE READ

INJURY AND SEVERITY RATES



LTI and MI rates are injuries and incidents per 200,000 hours worked (those resulting in lost time from work and those requiring medical attention, respectively). Severity rate is number of work days lost due to injury per 200,000 hours worked. 2020 figures have been updated to reflect post year-end adjustments, including injuries that resulted in missed work on a delayed basis.

COMMUNITY RELATIONSHIPS



> We appreciate Paper Excellence Canada making this donation. 9,000 seedlings is significant and over the coming decades we'll see a new forest emerge on our reserve.
>
> **Ron Burns,**
> Director of Forest Management, James Smith Cree Nation

Paper Excellence Canada strives for constructive dialogue with its operating communities, through community advisory forums and structured multi-stakeholder processes, ongoing touchpoints between mill and community leaders, and various other channels and interactions.

We also strive to meaningfully support our communities, consistent with our mission to “enhance the well-being of the communities that we operate in." We do this, in part, through donations to organizations and programs nationally, provincially and in the regions where we operate.

In 2021 we were pleased to launch a significantly expanded community investment program, representing more than $760,000 in targeted support.

PRACTICES AND PERSPECTIVES

10 CRUCIAL WEEKS IN THE LIFE OF 25,000 SALMON

When the water got hot and scarce for the Sunshine Coast Salmonid Enhancement Society, our Howe Sound mill was able to step up with temporary accommodation for a large cohort of young coho salmon.

SEE STORY 1 MINUTE READ

2021 "AREAS OF FOCUS" DONATIONS

Equal donations were made to these groups, reflecting our commitment to our four areas of focus.

CHARITABLE GIVING AREAS OF FOCUS

- **Indigenous Reconciliation**
- **Education and Entrepreneurship**
- **Environment and Sustainability**
- **At-Risk Children and Youth**

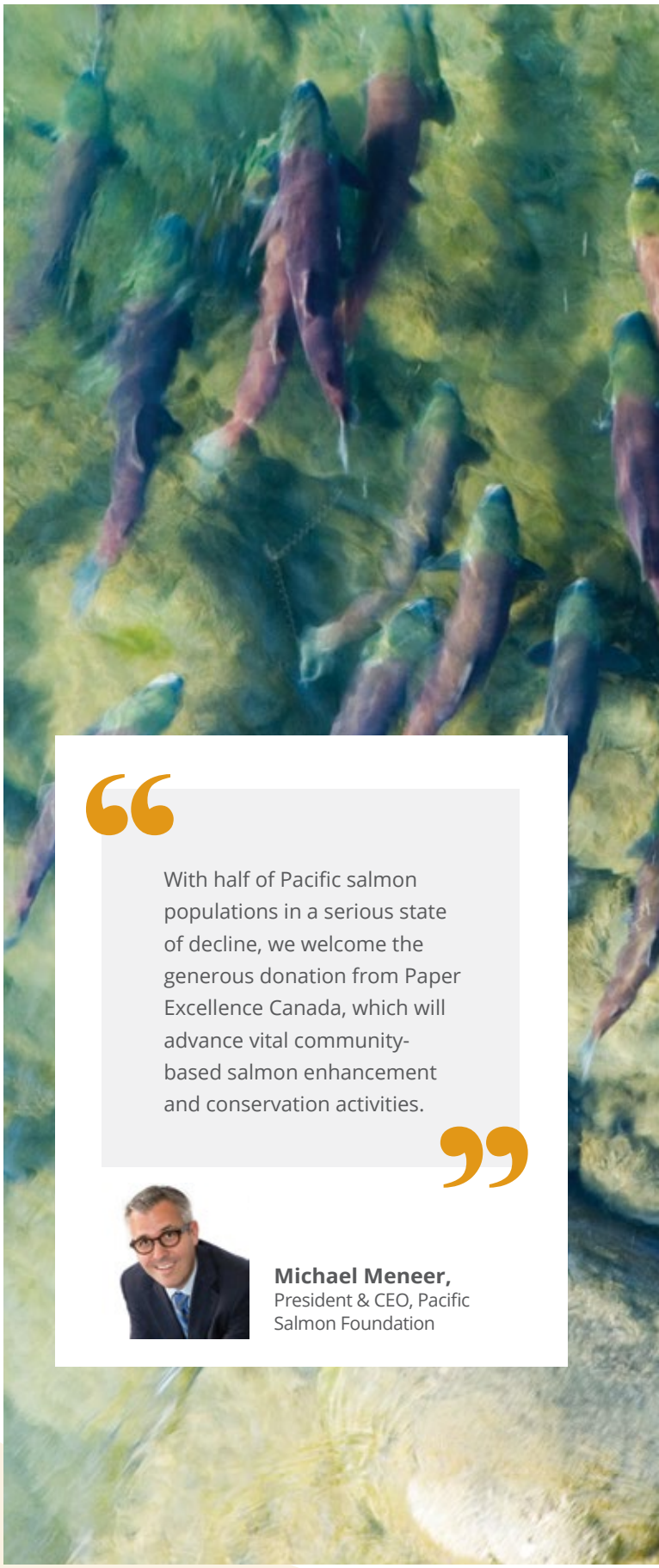
Indspire disburses financial awards, delivers programs, and shares resources with the goal of increasing graduation rates for Indigenous students.

Canadian Council for Aboriginal Business Women Indigenous Entrepreneurship Fund provides grants to businesses owned by Indigenous women who may lack access to conventional financing.

Pacific Salmon Foundation supports the regeneration and recovery of wild Pacific salmon through volunteer and community-driven organizations.

United Way raises and widely distributes charitable donations; Paper Excellence Canada's support will be directed to children in need across its operating areas.

Total Investment:
$200,000



> With half of Pacific salmon populations in a serious state of decline, we welcome the generous donation from Paper Excellence Canada, which will advance vital community-based salmon enhancement and conservation activities.

Michael Meneer,
President & CEO, Pacific Salmon Foundation

2021 EDUCATION DONATIONS

Donations in varying amounts were made to these post-secondary institutions, for scholarships and other support for students either in forest industry-relevant programs and/or of Indigenous heritage.

- Vancouver Island University
- British Columbia Institute of Technology
- College of the Rockies
- Saskatchewan Indian Institute of Technology
- Saskatchewan Polytechnique

> This investment recognizes the vital role Saskatchewan Polytechnic plays in educating students to meet the needs of our province's growing economy.

Hon. Gene Makowsky,
Saskatchewan Minister of Advanced Education

Total Investment:
$320,000

Individual donation amounts varied in part based on proximity to our mills.

> This generous donation means 50 VIU students will be able to attend classes with fewer financial worries and transition into high-demand careers in the trades. Once they graduate, that's dozens of skilled tradespeople giving back in our communities and strengthening BC's economy.

Glynis Steen,
Dean of Trades and Applied Technology, Vancouver Island University

Meadow Lake Mechanical Pulp met the Northwest Community Lodge Association fundraising challenge head-on! The mill donated $12,000 to the 72 Resident Suite Challenge which asked donors to "Make the Lodge a Home" by fully furnishing a suite in Meadow Lake's new continuing care home. Paper Excellence Canada supports ensuring those in the community who cannot live independently have dignified care and a safe place to call home.

Paper Excellence Canada recently partnered with Cumberland Wood Products (CWP) to plant 1,000 jack pine seedlings in and around the First Nation community of Cumberland House Cree Nation.

2021 LOCALLY FOCUSED DONATIONS

Each of our mills administers its own locally focused donations program, within three broad categories:

- **General Community Support** – Often small in amount and highly diverse, these donations support community events and celebrations, sports and recreation, volunteer efforts to strengthen local social safety nets, grassroots environmental projects, and more
- **Local Indigenous Community Support** – As our relationships with nearby Indigenous groups deepen, so too does our understanding of specific needs we can help meet, through donations similar in scope and diversity to those for non-Indigenous local communities
- **Local High School Scholarships** – In 2021, we complemented long-standing scholarships for graduates pursuing post-secondary studies with ones specifically for Indigenous students

Total Investment:
$243,000

This new trailer promotes partnership between the forest industry and Cowichan District Hospital Foundation. Catalyst Crofton was one of nine forest companies that each chipped in $10,000 to support the wrap on the trailer, raising $90,000 for the foundation.

INDIGENOUS RELATIONSHIPS

> . . . Reconciliation is about establishing and maintaining a mutually respectful relationship between Aboriginal and non-Aboriginal peoples in this country... there has to be awareness of the past, an acknowledgement of the harm that has been inflicted, atonement for the causes, and action to change behaviour.

The Truth and Reconciliation Commission of Canada

Cowichan River Day took place on September 25 at the riverside near the old Vancouver Island University on Cowichan Way. The Quw'utsun Sta'lo' (Cowichan River) has been the heartbeat of the Cowichan people since time immemorial and is provincially and nationally designated a heritage river.

Reconciliation between Indigenous peoples and broader Canadian society will necessarily be a gradual and lengthy process. And as all Canadians were starkly reminded in 2021, our satisfaction in modest progress can be quickly tempered by newly unearthed evidence of the severity of the harms inflicted.

There is, however, no choice but to persevere, as Paper Excellence Canada did in 2021. While Indigenous peoples will ultimately judge the sufficiency of Reconciliation outcomes, we believe we are indeed changing our behaviour; and that more respectful and mutually beneficial relationships are emerging between our company and many of the Indigenous groups in whose traditional territories we operate.

BUILDING INTERNAL CAPACITIES AND COMPETENCIES

Reconciliation represents a steep learning curve, but we are working to heed the Truth and Reconciliation Commission's call (#92) to incorporate the UN Declaration on the Rights of Indigenous Peoples into core operational activities.

Our executives made Personal Pledges of Reconciliation in 2021, and we introduced staff cultural competency training and cultural awareness content in employee communications. We also worked to enhance information sharing and consultation with Indigenous groups relating to operational changes.

To help ensure we continue to live the values of respect, empathy and cultural safety – and advance outcomes in other areas such as Indigenous employment – we committed in 2021 to the Progressive Aboriginal Relations (PAR) program administered by the Canadian Council for Aboriginal Business.

Certified now to the PAR "Committed" level, Paper Excellence Canada is at the foundational stage of the PAR program. A steering committee and audit will identify gaps and means by which we can further develop Indigenous relationships and advance through PAR certification levels.

FORMALIZING RELATIONSHIPS, PURSUING PARTNERSHIPS

Paper Excellence Canada's pre-existing formalized relationships with Indigenous groups include the long-standing and highly successful fibre-supply relationship with the Meadow Lake Tribal Council, and memorandum of understanding (MOUs) concluded with three Saskatchewan First Nations in 2020.

Milestones in 2021 included our first Indigenous business partnership in BC, in the form of our interest in the Atli Chip Limited Partnership (see page 24). We also concluded an MOU with the Tseshaht First Nation on Vancouver Island, concrete next steps under which were being discussed in early 2022, and a letter of understanding with Indigenous-owned Cumberland Wood Products in Saskatchewan.

"I am thankful that this scholarship will assist me financially to be able to reach my goal of supporting pregnant, birthing and postpartum families."

- Katia Haslam, Midwifery Education, University of British Columbia (UBC).

"While the signing of the Memorandum of Understanding marks the culmination of a lot of people's efforts, it truly marks the beginning of a process. We must not look at this process of Reconciliation as one of simply understanding and empathizing. It must be a process of genuine change and resolution."

- Walter Tarnowsky, General Manager, Catalyst Port Alberni

PRACTICES AND PERSPECTIVES

WORKING FOR BETTER INTER-CONNECTEDNESS WITH INDIGENOUS PARTNERS

Paper Excellence has now entered into formalized relationships with a number of Indigenous groups, founded on recognition and respect for their unique and inherent rights.

SEE STORY 1 MINUTE READ

CALLING THINGS BY THEIR NAME

A seemingly long-erased coastal placename is back on the map, after Paper Excellence Canada re-named its Powell River mill with the Tla'amin historical designation of the area. tisk^{w}at (tees-kwat) means big river. While mill operations were indefinitely curtailed later in 2021, its re-designation was welcomed by the Tla'amin and mill employees as the right thing to do. A significant Tla'amin village was displaced when the mill was built in the early 1900s.

OUR ECONOMIC CONTRIBUTION

We operate mills, offices and other facilities across various parts of British Columbia, as well as in northwestern Saskatchewan. We also have woodland tenures, lands and a seedling nursery in Nova Scotia, associated with our currently closed Northern Pulp mill.

We are an important part of the foundation of local economies in mill communities – through employment, procurement and tax payments.

But the benefits extend further still. Our operations are a significant source of income for widely dispersed suppliers, and we make a material contribution to GDP and public revenues provincially and nationally. We are a major producer of commodities that are an important part of Canadian exports.

The figures at right are derived from an analysis using input-output modelling and based on Statistics Canada economic impact multipliers. As 2021 data was not available in time for inclusion, and given major market and operational disruptions in 2020, the analysis is based on 2019 data.[8]

DEFINITIONS

These examples illustrate the difference between direct, indirect and induced economic benefits.

DIRECT JOB
A millwright that is employed by Paper Excellence Canada at a mill.

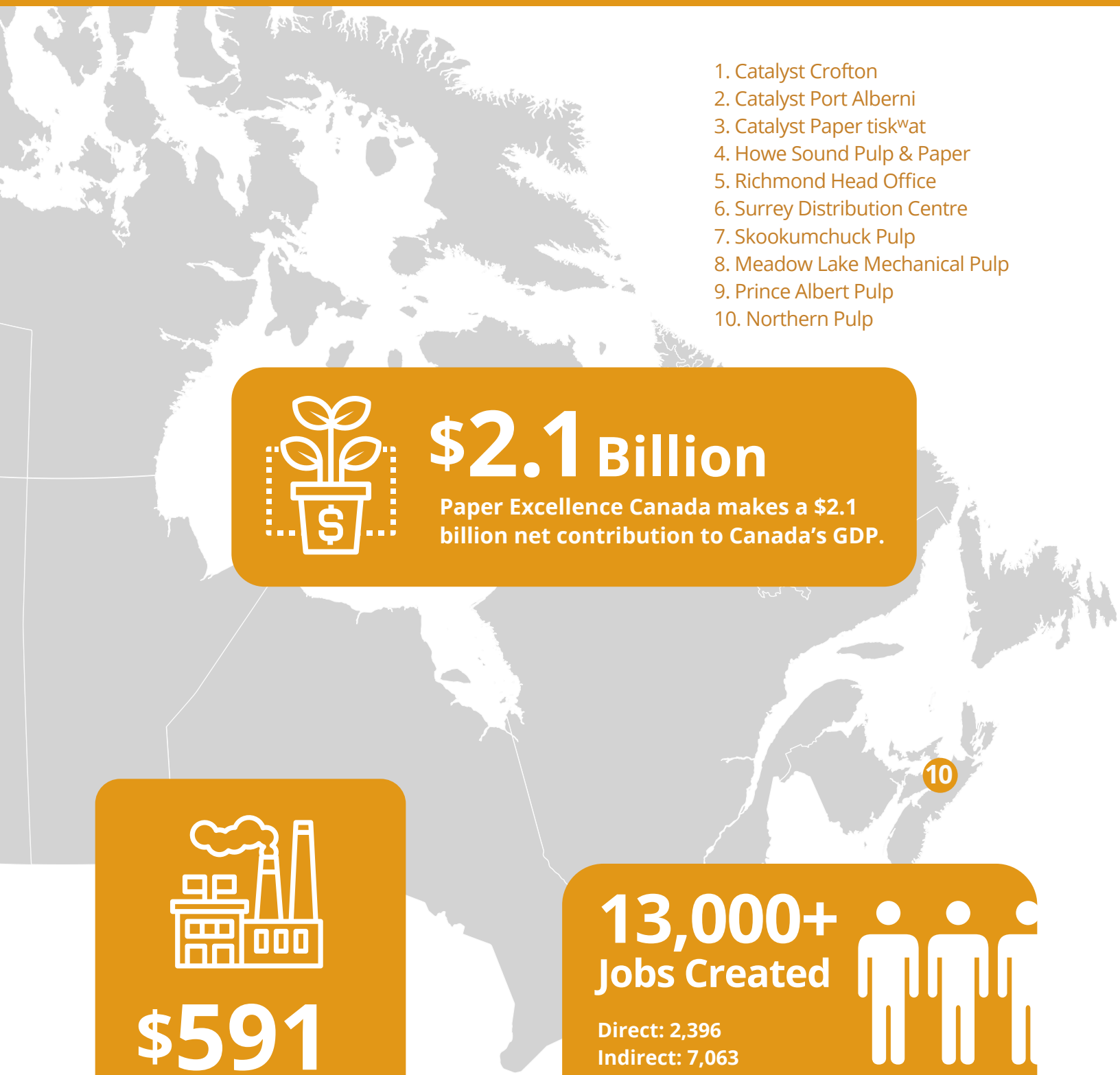
INDIRECT JOB
An engineer is employed at a consulting firm because of the business that firm does with Paper Excellence Canada.

INDUCED JOB
A barista is employed at a coffee bar because of the business it gets from employees of Paper Excellence Canada and its business partners.

OUTPUT
The total gross value of all goods or services produced at a particular location.

GDP
A measure of output minus the costs of inputs, thereby reflecting "value add" without double counting.

[8] This analysis was conducted by Mansfield Consulting Inc. and encompassed the facilities listed on page 39. Input-output modelling is a widely used method, which facilitates comparisons between reported results for different projects, businesses, and industries.



1. Catalyst Crofton
2. Catalyst Port Alberni
3. Catalyst Paper tiskʷat
4. Howe Sound Pulp & Paper
5. Richmond Head Office
6. Surrey Distribution Centre
7. Skookumchuck Pulp
8. Meadow Lake Mechanical Pulp
9. Prince Albert Pulp
10. Northern Pulp

$2.1 Billion

Paper Excellence Canada makes a $2.1 billion net contribution to Canada's GDP.

$591 Million

Our operations generate total public revenues of some $592 million.

13,000+ Jobs Created

Direct: 2,396
Indirect: 7,063
Induced: 3,595

Our operations support $1 billion in labour income across Canada.

All economic contribution figures on these pages include direct, indirect and induced benefits, and are from an analysis based on 2019 data.

MILL SPECIFIC ECONOMIC BENEFITS

(From an analysis based on 2019 data)

		Output (millions)	GDP (millions)	Payroll (millions)	Jobs	Public Revenues		
						Federal Tax (millions)	Provincial Tax (millions)	Municpal Tax (millions)
CROFTON MILL ECONOMIC IMPACTS WITHIN BC	Direct	$498.9	$152.1	$74.7	599	$21.5	$16.4	$5.0
	Indirect	$434.1	$198.8	$113.3	1,396	$27.9	$20.0	$4.3
	Induced	$124.5	$80.1	$32.8	658	$14.0	$14.6	$3.0
	TOTAL	**$1,057.5**	**$431.0**	**$220.8**	**2,653**	**$63.4**	**$51.0**	**$12.3**
HOWE SOUND MILL ECONOMIC IMPACTS WITHIN BC	Direct	$413.0	$142.6	$54.5	366	$19.6	$15.5	$2.0
	Indirect	$367.8	$169.4	$96.8	1,202	$23.8	$17.0	$3.6
	Induced	$108.4	$69.7	$28.5	572	$12.2	$12.8	$2.6
	TOTAL	**$889.2**	**$381.7**	**$179.8**	**2,140**	**$55.6**	**$45.3**	**$8.2**
MEADOW LAKE MILL ECONOMIC IMPACTS WITHIN SASKATCHEWAN	Direct	$280.0	$81.8	$22.1	201	$9.0	$7.8	$1.5
	Indirect	$163.8	$77.6	$32.5	482	$9.1	$9.2	$1.6
	Induced	$26.0	$16.8	$6.4	143	$2.9	$4.0	$0.7
	TOTAL	**$469.8**	**$176.2**	**$61.0**	**826**	**$21.0**	**$21.0**	**$3.8**
PORT ALBERNI MILL ECONOMIC IMPACTS WITHIN BC	Direct	$255.5	$77.4	$37.2	318	$11.0	$8.4	$4.3
	Indirect	$227.3	$104.1	$59.3	731	$14.6	$10.5	$2.2
	Induced	$65.1	$41.9	$17.2	344	$7.3	$7.7	$1.6
	TOTAL	**$547.9**	**$223.4**	**$113.7**	**1,393**	**$32.9**	**$26.6**	**$8.1**
tiskʷat MILL ECONOMIC IMPACTS WITHIN BC	Direct	$229.7	$77.9	$39.5	351	$10.7	$8.5	$3.4
	Indirect	$189.8	$87.4	$49.9	620	$12.3	$8.8	$1.9
	Induced	$55.8	$35.9	$14.7	295	$6.3	$6.6	$1.3
	TOTAL	**$475.3**	**$201.2**	**$104.1**	**1,266**	**$29.3**	**$23.9**	**$6.6**
SKOOKUMCHUCK MILL ECONOMIC IMPACTS WITHIN BC	Direct	$248.8	$85.4	$35.6	283	$11.7	$9.3	$0.4
	Indirect	$182.9	$84.3	$48.2	599	$11.8	$8.5	$1.8
	Induced	$54.1	$34.8	$14.2	286	$6.1	$6.4	$1.3
	TOTAL	**$485.8**	**$204.5**	**$98.0**	**1,168**	**$29.6**	**$24.2**	**$3.5**
SURREY DISTRIBUTION CENTRE ECONOMIC IMPACTS WITHIN BC	Direct	$8.3	$7.0	$6.2	79	$0.8	$0.4	$0.6
	Indirect	$0.5	$1.1	$0.9	14	$0.1	$0.1	$0.0
	Induced	$5.5	$3.5	$1.4	29	$0.6	$0.6	$0.1
	TOTAL	**$14.3**	**$11.6**	**$8.5**	**122**	**$1.5**	**$1.1**	**$0.7**
HEAD OFFICE ECONOMIC IMPACTS WITHIN BC	Direct	$36.7	$15.2	$12.6	199	$2.8	$2.2	$0.0
	Indirect	$6.5	$18.1	$10.9	144	$2.4	$1.4	$0.2
	Induced	$17.6	$11.4	$4.6	93	$2.0	$2.1	$0.4
	TOTAL	**$60.8**	**$44.7**	**$28.1**	**436**	**$7.2**	**$5.7**	**$0.6**

While the figures above are based on 2019 data, the output of our closed Mackenzie and Northern Pulp mills was not included.

		Output (millions)	GDP (millions)	Payroll (millions)	Jobs	Public Revenues		
						Federal Tax (millions)	Provincial Tax (millions)	Municpal Tax (millions)
ECONOMIC IMPACTS IN OTHER PROVINCES* (ALL MILLS)	Indirect	$572.5	$260.2	$134.7	1,875	$34.3	$24.6	$4.1
	Induced	$254.0	$133.6	$66.7	1,175	$20.3	$19.4	$5.0
	Total	**$862.6**	**$393.8**	**$201.4**	**3,050**	**$54.8**	**$44.1**	**$9.2**

TOTAL PAPER EXCELLENCE CANADA ECONOMIC BENEFITS (ACROSS CANADA)	Direct	**$1,970.9**	**$639.4**	**$282.4**	**2,396**	**$87.1**	**$68.5**	**$17.2**
	Indirect	**$2,145.2**	**$1,001.0**	**$546.5**	**7,063**	**$136.3**	**$100.2**	**$19.7**
	Induced	**$711.0**	**$427.7**	**$186.5**	**3,595**	**$71.7**	**$74.2**	**$16.0**
Variations in totals due to rounding.	**TOTAL**	**$4,827.1**	**$2,068.1**	**$1,015.4**	**13,054**	**$295.1**	**$242.9**	**$52.9**

*Because we have no mills or offices in these places, there are no direct numbers.

TAPPING INTO OUTSIDE PERSPECTIVES

Paper Excellence Canada maintained long-standing partnerships with these groups in 2021, each of which provides a unique line of sight on the sustainability performance of our operations, and candid guidance on how we can continue to advance it.

We also maintained our involvement in the Coast Forest Conservation Initiative – a long-standing industry-ENGO forum designed to support collaborative implementation of ecosystem-based management in BC's Great Bear Rainforest.

GREENBLUE®

Council for CLEAN CAPITALISM

COAST FOREST conservation initiative

PRACTICES AND PERSPECTIVES

FLAMES AND FLOODS CREATE LOGISTICS BOTTLENECKS

Weather conditions were much more than just a casual topic of conversation in BC in 2021, with dramatic swings between temperature extremes and highly damaging rainfalls. The resulting logistical challenges for our operations were significant.

SEE STORY 1 MINUTE READ

PRACTICES AND PERSPECTIVES

'YOU JUST GOTTA DO THAT'

Larry Cross, Recently Retired Environment Manager, Catalyst Port Alberni

40+ years ago an environmental-management role in a mill could be a lonely undertaking. But over the decades, everyone has come on board.

HEAR LARRY'S COMMENTS

Paper Excellence Canada has built a strategic portfolio of assets and is ready and able to invest in efficiency improvements and product development strategies to position its mills for long-term competitiveness.

PORT ALBERNI
PROVING OUR ADAPTIVE CAPABILITIES

A major upgrade at our Port Alberni mill will enable a significantly larger focus on production of Bistro specialty food-paper grades. The project was completed in early 2022 – a slight delay due in part to pandemic-related supply chain challenges – and the mill's specialty production will focus, at least initially, on bleached specialty grades.

While Port Alberni already produced some food-grade papers, this multi-million dollar upgrade has expanded its flexibility to run them on both of its machines, by alleviating bottlenecks in the baled-kraft processing and refining stages of production. This improves the mill's agility to meet customer orders.

A further advantage of the upgrade is the ability to re-pulp, or feed any specialty paper that doesn't meet grade standards back into the production process (it previously had to be stockpiled on site).

Specialty grades are on an opposite demand trajectory from printing papers, and this upgrade will be the next proof point of this mill's well-established capacity to adapt to evolving market realities.

Catalyst Port Alberni has increased its production of food-paper grades substantially over the last five years which is part of Paper Excellence Canada's overall market strategy.

PRINCE ALBERT
PROGRESSING TOWARDS A LONG-AWAITED RE-START

We continued to work towards what we hope will be a late 2023 re-start of our mill in Prince Albert, Saskatchewan, which will end a more than 15-year long period of dormancy at this important industrial facility.[9]

In September 2021, we secured an annual allocation from the provincial government of about one million cubic metres of wood fibre; and in November announced an agreement with One Sky Forest Products, through which it will locate an oriented strand board facility on our mill site.

Not only will that arrangement create infrastructure-sharing efficiencies, but the complementary requirements of the two facilities will more efficiently use the wood fibre from local mixed-species forests. There is also longer-term potential for these co-located facilities to become part of a larger and more diversified cluster of forest-based operations.

A letter of intent with First Nations-owned Cumberland Wood Products was also a noteworthy milestone, and may become a basis for further security of wood-fibre supply for the re-started mill.

We intend to re-build key mill infrastructure and to leverage its modern recovery boiler for green (biomass-based) energy generation, to help reduce the greenhouse gas intensity of the Saskatchewan grid. Once in operation the mill would be the most modern kraft pulp mill in Canada and is also expected to have the lowest carbon intensity of any of them.

Paper Excellence Canada strengthened relationships with local governments, residents and nearby First Nations in 2021. An October project open house gave interested parties an opportunity to learn more.

Scholarships and our broader community investment program have also been extended to this region.

While the re-start remained subject to government approvals when this report was prepared, we are optimistic about this operation's future.

[9] Paper Excellence Canada acquired this mill in 2011 but has never operated it, in part due to a non-compete agreement for paper-grade pulp with the former owner, which expired in 2021.

We've toured many groups around Prince Albert Pulp, including these officials from the City of Prince Albert. Jim Toye, City Manager; Kris Olsen, Fire Chief; Alex Paul, Deputy Fire Chief and Cheryl Tkachuk, Director of Financial Services joined our team to tour the mill and learn about the investments we're making to restart it.

"Cumberland House Cree Nation is pleased to acknowledge the working relationship with Prince Albert Pulp and Cumberland Wood Products and their efforts supporting the reopening of the mill in Prince Albert. We welcome our partnership in the support of fibre supply and operations that lead to our mutual benefit; guided by an ecosystem management plan for the Saskatchewan River Delta and the sustainable use of its resources."

- **Chief Rene Chaboyer** of the Cumberland House Cree Nation

NORTHERN PULP
COMMITTED TO DOING THINGS DIFFERENTLY

Our Northern Pulp mill in Pictou County, Nova Scotia, has been closed since early 2020. We continue to believe it can operate again – sustainably and with wide support – but we also concluded ever-more firmly in 2021 that we needed to completely transform our vision for it.

In May, we drew a firm line under our previous plans and approaches, by withdrawing an environmental assessment registration.

Guided in part by findings of a community-based Environmental Liaison Committee,[10] we then defined a new modernization plan for the mill. This entailed a complete re-assessment of the full spectrum of its operations – including transparency and community engagement; forestry practices; and the management of impacts of all kinds, whether to air, land or water.

This, we hope, will prove to have been an important step toward the mill's future and the rebuilding of relationships with residents, special interest groups, and First Nations.

OUR TRANSFORMATION VISION INCLUDES:

- Significantly reduced environmental impact
- Full implementation, on Northern Pulp-owned and managed Crown land, of the sustainability practices identified in the Lahey Report
- A low-carbon and energy-efficient operation
- Active outreach and developing partnerships with First Nations and local communities
- The more than 60,000 hectares of high conservation value land previously set aside for permanent protection
- 330 full-time, local jobs and another 2,050 indirect jobs for Nova Scotians
- A buy local procurement policy

Learn more: **www.tomorrowsmill.ca**

Our plan would transform the mill into a best-in-class operation and one of the world's cleanest, most environmentally focused, and community-based mills. However, we acknowledge that there are challenges ahead in finding long-term solutions to the issues faced by Northern Pulp and our goal is to have meaningful discussions with the Province of Nova Scotia with a view to finding "win-win" solutions for all.

As of December 31, 2021, the Nova Scotia government had issued draft terms of reference for an environmental assessment of our transformation plan. Efforts to finalize them will continue into 2022. In parallel, we are working to resolve compensatory issues arising out of the forced closure of the mill 11 years before the end of an effluent treatment facility lease – an issue on which we have proposed mediation with the Nova Scotia government.

PRACTICES AND PERSPECTIVES

A CIRCLE OF INHERENT SUSTAINABILITY

Laura Thompson, MS and PhD, Paper Science; Principal, 4 Minutes LLC Consulting

The paper industry stands apart from many others as a circular solution, and an industry that is constantly feeding back into its own supply chain.

HEAR LAURA'S COMMENTS

[10] This committee was court-approved in April 2021 as a standing advisory body.

UNITED NATIONS SUSTAINABLE DEVELOPMENT GOALS

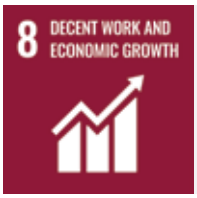
In 2015, the United Nations set 17 interlinked global sustainable development goals, intended for achievement by 2030. Paper Excellence Canada's operations are consistent with these goals and contribute directly to realization of several.

ENSURE INCLUSIVE AND EQUITABLE QUALITY EDUCATION AND PROMOTE LIFELONG LEARNING OPPORTUNITIES FOR ALL

Through scholarship programs and community investments we actively promote pursuit of post-secondary education. We also offer ongoing educational and development opportunities for our workforce.

ENSURE ACCESS TO AFFORDABLE, RELIABLE, SUSTAINABLE AND MODERN ENERGY FOR ALL

We are leaders in cost-effective and low-emission use of biomass fuel for electricity generation, and our operations may become an important part of future green-energy plays such as hydrogen and gasification hubs.



PROMOTE SUSTAINED, INCLUSIVE AND SUSTAINABLE ECONOMIC GROWTH, FULL AND PRODUCTIVE EMPLOYMENT AND DECENT WORK FOR ALL

We provide some 2,400 direct jobs in Canada, almost entirely full-time and predominately unionized. We attract skilled workers on an equal-opportunity basis, with a direct payroll of more than $280 million. (Economic analysis based on 2019 data.)

BUILD RESILIENT INFRASTRUCTURE, PROMOTE INCLUSIVE AND SUSTAINABLE INDUSTRIALIZATION AND FOSTER INNOVATION

We continue to adapt existing infrastructure to align with evolving market demands, and are exploring more fundamental innovations in support (for example) of further advancement of the bio-economy.

ENSURE SUSTAINABLE PRODUCTION AND CONSUMPTION PATTERNS

Our facilities use renewable inputs and low-impact production processes, and make biodegradable products that represent a viable alternative to higher-impact materials.

TAKE URGENT ACTION TO COMBAT CLIMATE CHANGE AND ITS IMPACTS

Forest products are widely recognized as low-carbon across their lifecycles, while the sustainable management of forested areas contributes to carbon sequestration.

PROTECT, RESTORE AND PROMOTE SUSTAINABLE USE OF TERRESTRIAL ECOSYSTEMS, SUSTAINABLY MANAGE FORESTS, COMBAT DESERTIFICATION, AND HALT AND REVERSE LAND DEGRADATION AND HALT BIODIVERSITY LOSS

As part of our transformation plan at Northern Pulp, we have permanently protected 60,000 hectares of land, and the mill would continue to grow 5.5 million trees per year for replanting in its nursery operations.

MILL-SPECIFIC ENVIRONMENTAL PERFORMANCE DATA

CROFTON	2017	2018	2019	2020	2021
WATER USE & WASTEWATER					
Process Water Use m^3/tonne	72	71	75	104	89
TSS kg/day	4,959	4,313	3,340	3,016	4,757
TSS kg/tonne	2.62	2.25	1.79	2.61	3.12
BOD kg/day	1,694	1,640	1,442	939	1,384
BOD kg/tonne	0.88	0.85	0.77	0.74	0.91
AOX kg/day	290	356	320	277	165
AOX kg/tonne	0.27	0.17	0.28	0.26	0.26
2378TCDD ppq	ND	ND	ND	ND	ND
2378TCDF ppq	ND	ND	ND	ND	ND
Trout Toxicity % Compliance	100	93	96	100	100

ND = non-detectable test result.
2378TCDD ppq & 2378TCDF ppq are specific dioxin and furan congeners in waste water.

ENERGY USE					
Fuel Energy Use GJ	18,927,745	18,885,163	19,501,111	16,674,748	17,410,696
Fuel Energy Intensity GJ/tonne	26.90	26.94	28.02	37.06	31.27
Electricity Use MWh	1,322,417	1,253,838	1,177,907	605,300	1,020,936
Electricity Intensity MWh/tonne	1.88	1.79	1.69	1.35	1.83
Total Energy Use (excl. self-generated electricity) GJ	22,752,016	22,573,641	22,787,355	17,981,193	20,397,202
Total Energy Intensity (excl. self-generated electricity) GJ/tonne	32.30	32.20	32.75	39.97	36.63
Renewable Energy - % of Total Use	87.1	88.6	87.0	84.4	84.38

GJ = Gigajoules; MWh = Megawatt-hours

SOLID WASTE					
Solid Waste to Landfill tonnes	18,359	25,143	28,789	17,695	15,567

In this appendix, fuel energy measures include all purchased fuels and self-generated biomass (fibre residuals and black liquor); electricity measures include all purchased and self-generated electricity. Total energy metrics include energy use both for the production of forest products and (where applicable) for the production of electricity sold to the grid; intensity metrics relate to production of forest products only.

	2017	2018	2019	2020	2021
CARBON & OTHER AIR EMISSIONS					
Total GHGs as kg $C0_2e$/year (Scope 1/Direct)	178,976,550	158,778,121	183,345,030	168,155,000	185,562,138
Total GHGs as kg $C0_2e$/tonne (Scope 1/Direct)	254	226	264	374	333
Total GHGs as kg $C0_2e$/year (Scope 2/Indirect)*	9,560,673	9,221,181	11,228,002	14,520,600	33,183,400
Total GHGs as kg $C0_2e$/tonne (Scope 2/Indirect)	13.57	13.15	16.14	32.27	59.59
Particulate Matter kg/day	887	1,123	773	775	1,047
Particulate Matter kg/tonne	0.46	0.58	0.40	0.61	0.69
Sulphur Dioxides kg/day	3,190	7,004	7,997	4,246	2,276
Sulphur Dioxides kg/tonne	1.65	3.65	2.60	2.05	1.49
$N0_x$ kg/day	2,341	2,261	2,544	2,626	2,607
$N0_x$ kg/tonne	1.21	1.18	1.32	2.05	1.71
TRS kg/day	208	181	279	214	198
TRS kg/tonne	0.108	0.094	0.145	0.168	0.110
Power Boiler adt ng/m^3 TEQ	0.017	0.052	0.014	0.013	0.024
Ambient TRS % compliance A level 24-hr average	91.0	96.3	98.6	96.1	95.7
Ambient PM 2.5 average, ug/m^3	6.9	7.8	6.1	6.5	4.2

PM = particulate matter; TEQ = total dioxin equivalence; ug = microgram
* The increase in Scope 2 emissions reflects a significant change in the carbon intensity of electricity purchased off the BC grid. Significantly lower paper production in 2020 moderated Scope 2 emissions that year.

FIBRE - PAPER PRODUCTION					
Fibre Use By Type - Tonnes					
Woodchips	274,000	306,000	215,556	204,843	294,847
Pulp Logs	32,000	16,000	59,133	42,264	15,411
Total Fibre Used	**306,000**	**322,000**	**274,689**	**247,107**	**310,258**
Certified Fibre - %					
FSC Certified	0	0	0	0	0
PESF/SFI Certified	41	35	38	30	52
Fibre from Private Lands - %*	15	15	15	15	15

FIBRE - PULP PRODUCTION					
Fibre Use By Type - Tonnes					
Woodchips	751,000	680,000	568,508	529,714	524,513
Pulp Logs	64,000	167,000	257,458	138,497	97,585
Total Fibre Used	**815,000**	**847,000**	**825,966**	**668,211**	**622,098**
Certified Fibre - %					
FSC Certified	0	0	0	0	0
PESF/SFI Certified	42	37	33	32	52
Fibre from Private Lands - %*	15	15	15	15	15

*All figures are estimates

HOWE SOUND	2017	2018	2019	2020	2021
WATER USE & WASTEWATER					
Process Water Use m^3/tonne	61	55	50	55	61
TSS kg/day	2,284	1,397	1,413	1,005	1,059
TSS kg/tonne	2.33	1.35	1.26	0.87	1.00
BOD kg/day	617	635	487	365	462
BOD kg/tonne	0.63	0.62	0.43	0.32	0.44
AOX kg/day	300	253	370	237	174
AOX kg/tonne	0.31	0.25	0.33	0.21	0.17
2378TCDD ppq	ND	ND	ND	ND	ND
2378TCDF ppq	ND	ND	ND	ND	ND
Trout Toxicity % Compliance	100	100	100	93	100

ND = non-detectable test result.
2378TCDD ppq & 2378TCDF ppq are specific dioxin and furan congeners in waste water.

ENERGY USE					
Fuel Energy Use GJ	16,729,396	16,977,747	18,151,370	18,557,501	16,245,589
Fuel Energy Intensity GJ/tonne	46.84	45.10	44.36	44.26	42.24
Electricity Use MWh	346,511	360,923	373,917	372,182	361,742
Electricity Intensity MWh/tonne	0.97	0.96	0.91	0.89	0.94
Total Energy Use (excl. self-generated electricity) GJ	16,902,495	17,153,517	18,340,410	18,745,094	16,301,256
Total Energy Intensity (excl. self-generated electricity) GJ/tonne	47.33	45.56	44.82	44.71	42.38
Renewable Energy - % of Total Use	89.2	91.4	90.7	90.8	90.3

GJ = Gigajoules; MWh = Megawatt-hours

SOLID WASTE					
Solid Waste to Landfill tonnes	27,637	37,910	48,380	58,422	55,063

	2017	2018	2019	2020	2021
CARBON & OTHER AIR EMISSIONS					
Total GHGs as kg $C0_2e$/year (Scope 1/Direct)	114,965,592	97,617,416	109,734,487	102,441,430	103,487,531
Total GHGs as kg $C0_2e$/tonne (Scope 1/Direct)	322	259	268	244	269
Total GHGs as kg $C0_2e$/year (Scope 2/Indirect)	432,747	433,791	472,600	2,084,366	618,720
Total GHGs as kg $C0_2e$/tonne (Scope 2/Indirect)	1.21	1.15	1.16	4.97	2.00
Particulate Matter kg/day	747	645	987	1,215	1,136
Particulate Matter kg/tonne	0.76	0.62	0.88	1.06	1.08
Sulphur Dioxides kg/day	2,912	2,908	3,311	3,692	3,654
Sulphur Dioxides kg/tonne	2.98	2.82	2.95	3.21	3.47
$N0_x$ kg/day	2,509	2,601	261	310	280
$N0_x$ kg/tonne	2.56	2.52	0.23	0.27	0.27
TRS kg/day	159	94	172	177	124
TRS kg/tonne	0.163	0.091	0.154	0.154	0.117
Power Boiler adt ng/m^3 TEQ	0.280	0.061	0.053	0.011	0.019
Ambient TRS % compliance A level 24-hr average	100	100	99.9	99.8	100
Ambient PM 2.5 average, ug/m^3*	9.7	5.6	3.4	6.4	5.5

PM = particulate matter; TEQ = total dioxin equivalence; ug = microgram
*Results for 2017 and 2020 were heavily impacted by forest fires.

FIBRE					
Fibre Use By Type - Tonnes					
Woodchips	503,000	521,000	463,000	451,000	362,000
Pulp Logs	235,000	260,000	397,000	447,000	460,000
Total Fibre Used	**738,000**	**781,000**	**860,000**	**898,000**	**822,000**
Certified Fibre - %					
FSC Certified	0	0	0	0	0
PESF/SFI Certified	31	34	29	27	45
Fibre from Private Lands - %*	15	15	15	15	15

*All figures are estimates

MEADOW LAKE	2017	2018	2019	2020	2021
WATER USE & WASTEWATER					
Not applicable: Closed loop mill with zero effluent					

ENERGY USE					
Fuel Energy Use GJ	1,687,007	1,785,672	1,917,821	1,949,373	1,929,590
Fuel Energy Intensity GJ/tonne	4.13	4.15	4.82	4.80	4.93
Electricity Use MWh	660,490	624,530	564,953	564,953	569,354
Electricity Intensity MWh/tonne	1.62	1.45	1.42	1.39	1.46
Total Energy Use (excl. self-generated electricity) GJ*	4,059,889	4,034,120	2,385,171	3,983,204	3,979,264
Total Energy Intensity (excl. self-generated electricity) GJ/tonne*	9.94	10.03	6.00	9.81	10.16
Renewable Energy - % of Total Use**		8.3	36.1	32.3	32.0

GJ = Gigajoules; MWh = Megawatt-hours
*Figures for 2017 and 2018 have been re-stated to correct for an error that resulted in an over-statement in last year's report.
**2017 data not available

SOLID WASTE					
Solid Waste to Landfill tonnes	10,381	17,401	19,509	19,102	21,181

	2017	2018	2019	2020	2021
CARBON & OTHER AIR EMISSIONS					
Total GHGs as kg $C0_2e$/year (Scope 1/Direct)	89,216,000	67,545,950	77,878,600	68,673,840	78,522,262
Total GHGs as kg $C0_2e$/tonne (Scope 1/Direct)	218	157	196	169	201
Total GHGs as kg $C0_2e$/year (Scope 2/Indirect)	425,800,564	403,446,380	473,945,200	467,288,190	470,928,378
Total GHGs as kg $C0_2e$/tonne (Scope 2/Indirect)	1,042	937	1,192	1,151	1,204
Particulate Matter kg/day	384	1,943	2,086	2,275	820*
Particulate Matter kg/tonne	0.03	1.65	1.92	2.04	0.76
Sulphur Dioxides kg/day	38	36	36	13	41
Sulphur Dioxides kg/tonne	0.03	0.03	0.03	0.01	0.04
$N0_x$ kg/day	652	426	403	353	452
$N0_x$ kg/tonne	0.58	0.36	0.37	0.32	0.42

*Particulate performance improved following a re-build of and improved combustion efficiency at the mill's Olivine burner (used to dispose of waste wood).

FIBRE					
Fibre Use By Type - Tonnes					
Woodchips	145,220	149,938	131,577	112,052	171,605
Pulp Logs	266,960	279,851	326,852	338,231	211,102
Total Fibre Used	**412,180**	**429,789**	**458,429**	**450,283**	**382,707**
Certified Fibre - %					
FSC Certified	35	35	45	52	35
PESF/SFI Certified	55	59	46	30	51
Fibre from Private Lands - %	4	5	9	18	14

PORT ALBERNI	2017	2018	2019	2020	2021
WATER USE & WASTEWATER					
Process Water Use m^3/tonne*	87	95	83	90	99
TSS kg/day	973	1,106	1,070	1,123	1,031
TSS kg/tonne	1.09	1.27	1.45	1.68	1.45
BOD kg/day**	530	570	520	450	720
BOD kg/tonne	0.59	0.65	0.71	0.67	1.01
Trout Toxicity % Compliance	100	100	100	100	100

* Higher summer temperatures and longer operation of cooling towers were contributing factors to increased water use, along with increased chemical applications associated with production/product line changes.

**Effluent treatment plant performance, influenced in part by production/product line changes, contributed to higher BOD levels.

ENERGY USE					
Fuel Energy Use GJ	4,620,197	5,366,061	4,568,174	4,578,093	4,940,522
Fuel Energy Intensity GJ/tonne	14.30	16.90	17.04	18.80	19.03
Electricity Use MWh	773,481	748,406	655,242	664,240	690,121
Electricity Intensity MWh/tonne	2.39	2.35	2.44	2.73	2.66
Total Energy Use (excl. self-generated electricity) GJ	7,147,480	7,804,273	6,693,452	6,722,153	7,155,252
Total Energy Intensity (excl. self-generated electricity) GJ/tonne	22.06	24.54	24.97	27.61	27.57
Renewable Energy - % of Total Use	91.7	94.9	95.2	93.2	89.2

GJ = Gigajoules; MWh = Megawatt-hours

SOLID WASTE					
Solid Waste to Landfill tonnes	21,246	18,648	20,597	19,287	23,481

	2017	2018	2019	2020	2021
CARBON & OTHER AIR EMISSIONS					
Total GHGs as kg $C0_2e$/year (Scope 1/Direct)*	38,896,408	27,475,975	28,012,653	28,538,955	46,659,535
Total GHGs as kg $C0_2e$/tonne (Scope 1/Direct)	120	86	105	117	180
Total GHGs as kg $C0_2e$/year (Scope 2/Indirect)**	6,318,207	6,095,529	17,710,650	23,822,880	24,608,116
Total GHGs as kg $C0_2e$/tonne (Scope 2/Indirect)	19.5	19.2	66.1	97.8	94.8
Particulate Matter kg/day	14	18	37	28	35
Particulate Matter kg/tonne	0.02	0.02	0.05	0.04	0.04
Sulphur Dioxides kg/day†	620	480	516	429	718
Sulphur Dioxides kg/tonne	0.70	0.55	0.63	0.57	0.88
$N0_x$ kg/day‡	688	566	740	606	739
$N0_x$ kg/tonne	0.77	0.65	0.90	0.81	0.91
Power Boiler adt ng/m^3 TEQ	0.06	0.05	0.04	0.03	0.35
Ambient PM 2.5 average, ug/m^3	9.9	10.4	8.8	8.9	7.1

PM = particulate matter; TEQ = total dioxin equivalence; ug = microgram
*The increase in Scope 1 emissions in 2021 reflects increased natural gas use as a result of several factors, including power boiler maintenance issues, and weather and supply-chain issues that impacted availability of alternative fuels.
**The increase in Scope 2 emissions beginning in 2019 reflects a significant change in the carbon intensity of electricity purchased off the BC grid.
†Increased use of tire-derived fuel, as a result of the poor quality of available biomass fuels, contributed to higher sulphur dioxide.
‡N0x results in 2021 were influenced by unusually high flow rates through the pollution control equipment on the sampling dates.

FIBRE					
Fibre Use By Type - Tonnes					
Woodchips	94,000	98,000	39,854	48,821	66,020
Pulp Logs	106,000	101,000	131,994	106,047	101,028
Purchased Virgin Pulp	14,652	15,515	15,194	12,204	15,643
Total Fibre Used	**214,652**	**214,515**	**187,042**	**167,072**	**182,691**
Certified Fibre - %					
FSC Certified	6	7	8	9	9
PESF/SFI Certified	67	72	79	76	52
Fibre from Private Lands - %*	15	15	15	15	15

*All figures are estimates

tiskwat	2017	2018	2019	2020	2021
WATER USE & WASTEWATER					
Process Water Use m^3/tonne	93	92	92	86	100
TSS kg/day	1,726	897	1,088	560	538
TSS kg/tonne	1.2	1.1	1.6	1.9	1.1
BOD kg/day	854	612	699	178	381
BOD kg/tonne	0.57	0.73	1.10	1.10	0.98
AOX kg/day	NA	NA	NA	NA	NA
AOX kg/tonne	NA	NA	NA	NA	NA
2378TCDD ppq	NA	NA	NA	NA	NA
2378TCDF ppq	NA	NA	NA	NA	NA
Trout Toxicity % Compliance	100	100	100	100	97

NA - not applicable
2378TCDD ppq & 2378TCDF ppq are specific dioxin and furan congeners in waste water.

ENERGY USE					
Fuel Energy Use GJ	8,644,946	7,977,510	7,843,079	4,900,565	6,762,810
Fuel Energy Intensity GJ/tonne	28.31	26.10	31.27	46.00	38.67
Electricity Use MWh	1,043,937	1,000,195	833,378	254,356	435,411
Electricity Intensity MWh/tonne	3.42	3.27	3.32	4.31	3.37
Total Energy Use (excl. self-generated electricity) GJ	11,359,169	10,606,677	9,890,161	5,175,883	7,490,655
Total Energy Intensity (excl. self-generated electricity) GJ/tonne	37.20	34.70	39.40	52.30	45.68
Renewable Energy - % of Total Use	91.5	90.4	92.8	85.7	91.5

GJ = Gigajoules; MWh = Megawatt-hours

SOLID WASTE					
Solid Waste to Landfill tonnes	25,749	27,461	28,980	18,410	26,750

	2017	2018	2019	2020	2021
CARBON & OTHER AIR EMISSIONS					
Total GHGs as kg $C0_2e$/year (Scope 1/Direct)	68,585,637	64,165,236	49,290,882	38,320,231	45,212,791
Total GHGs as kg $C0_2e$/tonne (Scope 1/Direct)	225	210	197	267	232
Total GHGs as kg $C0_2e$/year (Scope 2/Indirect)	5,439,479	6,572,916	5,117,706	3,059,080	5,930,080
Total GHGs as kg $C0_2e$/tonne (Scope 2/Indirect)	17.8	21.5	20.4	24.5	50.0
Particulate Matter kg/day	33	22	24	51	74
Particulate Matter kg/tonne	0.04	0.03	0.03	0.05	0.13
Sulphur Dioxides kg/day	411	370	402	331	257
Sulphur Dioxides kg/tonne	0.49	0.44	0.53	0.42	0.55
$N0_x$ kg/day	1,667	1,481	1,329	1,141	1,116
$N0_x$ kg/tonne	1.99	1.77	1.76	1.62	2.18
Power Boiler adt ng/m^3 TEQ	0.04	0.02	0.06	0.03	0.02
Ambient TRS % compliance A level 24-hr average	91.8%	91.0%	93.2%	98.9%	100%
Ambient PM 2.5 average, ug/m^3	2.30	3.06	4.67	7.03	5.01

PM = particulate matter; TEQ = total dioxin equivalence; ug = microgram

FIBRE					
Fibre Use By Type - Tonnes					
Woodchips	260,000	250,000	178,402	42,285	37,889
Pulp Logs	-	13,000	25,423	948	68,425
Total Fibre Used	**260,000**	**263,000**	**203,825**	**43,233**	**106,314**
Certified Fibre - %					
FSC Certified	0	0	0	0	0
PESF/SFI Certified	75	53	60	54	52
Fibre from Private Lands - %*	15	15	15	15	15

*All figures are estimates

SKOOKUMCHUCK	2017	2018	2019	2020	2021
WATER USE & WASTEWATER					
Process Water Use m^3/tonne	52	49	51	53	55
TSS kg/day	2,188	2,082	1,765	1,482	1,185
TSS kg/tonne	3.07	2.75	0.01	0.01	1.71
BOD kg/day	1,560	1,691	1,336	927	917
BOD kg/tonne	2.19	2.23	0.01	0.00	1.32
AOX kg/day	147	159	128	113	118
AOX kg/tonne	0.17	0.18	0.18	0.16	0.17
Trout Toxicity % Compliance	83	83	88	100	100

ENERGY USE					
Fuel Energy Use GJ	7,600,675	8,093,811	7,946,086	7,533,487	7,346,614
Fuel Energy Intensity GJ/tonne	29.91	29.99	30.58	29.90	29.02
Electricity Use MWh	206,667	212,721	210,432	211,064	209,468
Electricity Intensity MWh/tonne	0.81	0.79	0.81	0.84	0.83
Total Energy Use (excl. self-generated electricity) GJ	8,344,676	8,859,607	8,703,641	8,293,317	7,117,436
Total Energy Intensity (excl. self-generated electricity) GJ/tonne	32.84	32.83	33.49	32.92	28.11
Renewable Energy - % of Total Use*		92.3	93.9	90.2	89.1

GJ = Gigajoules; MWh = Megawatt-hours

*2017 data not available

SOLID WASTE					
Solid Waste to Landfill tonnes	7,904	8,387	12,472	16,239	13,642

	2017	2018	2019	2020	2021
CARBON & OTHER AIR EMISSIONS					
Total GHGs as kg $C0_2e$/year (Scope 1/Direct)	52,295,403	49,026,600	52,382,345	66,558,588	62,365,842
Total GHGs as kg $C0_2e$/tonne (Scope 1/Direct)	206	182	202	264	246
Total GHGs as kg $C0_2e$/year (Scope 2/Indirect)	870,858	889,326	857,222	1,696,720	789,680
Total GHGs as kg $C0_2e$/tonne (Scope 2/Indirect)	3.4	3.3	3.3	6.7	3.1
Particulate Matter kg/day**	309	306	214	398	292
Particulate Matter kg/tonne**	0.44	0.41	0.30	0.58	0.42
Sulphur Dioxides kg/day**	56	60	140	75	70
Sulphur Dioxides kg/tonne**	0.08	0.08	0.20	0.11	0.10
$N0_x$ kg/day**	563	842	781	916	585
$N0_x$ kg/tonne**	0.81	1.14	1.10	1.33	0.84
TRS kg/day**	66	41	29	31	32
TRS kg/tonne**	0.10	0.06	0.04	0.05	0.05
Power Boiler adt ng/m^3 TEQ	NA	NA	NA	NA	NA
Ambient TRS % compliance A level 24-hr average*	99.8	99.9	99.9	99.9	99.9
Ambient PM 2.5 average, ug/m^3	5.5	6.6	4.3	7.1	6.9

PM = particulate matter; TEQ = total dioxin equivalence; ug = microgram; NA = not applicable
**Prior years' air-emissions data (particulates, sulphur dioxides, N0x and TRS) have been re-stated to correct for calculation errors.
*In the case of this mill, this metric is based on a 20 ppb A-level limit on a 1-hour basis.

FIBRE					
Fibre Use By Type - Tonnes					
Woodchips	439,817	443,628	391,665	425,810	433,806
Pulp Logs	104,589	138,081	153,686	185,833	115,708
Total Fibre Used	**544,406**	**581,709**	**545,351**	**611,643**	**549,514**
Certified Fibre - %					
FSC Certified	58	61	63	49	55
PESF/SFI Certified	33	31	33	44	37
Fibre from Private Lands - %	9	8	4	7	8

ADDITIONAL PERFORMANCE DATA

	2017	2018	2019	2020	2021
SALEABLE PRODUCTION BY MILL (TONNES)					
Crofton	704,467	701,048	695,873	449,921	556,826
Howe Sound	357,133	376,471	409,209	419,261	384,622
Meadow Lake	408,445	430,741	397,558	406,075	391,240
Port Alberni	324,019	318,059	268,030	243,477	259,564
tiskʷat	305,334	305,671	250,799	59,032	118,143
Skookumchuck	254,109	269,854	259,861	251,959	253,162

TOTAL WASTE GENERATION 2021 (TONNES)	Total Generated	Landfilled	Used for Energy Generation	Other Beneficial Re-uses
Fly Ash	**86,859**	79,525	0	7,334
Effluent treatment sludges	**72,584**	2,700	69,884	0
Grate ash & sand	**27,733**	27,733	0	0
Dregs & grits	**35,282**	35,282	0	0
Other	**10,242**	10,236	0	6
Scrap metal	**755**	0	0	755
Total	**233,455**	**155,476**	**69,884**	**8,095**

TOTAL ENVIRONMENT INCIDENTS IN 2020 = 89					
By Type		**By Impacted Area**		**By Significance**	
Permit non-compliance	37	Water	39	High	10
Release	40	Land	12	Medium	31
Admin. error	12	Air	36	Low	48
		Land/Air combined	2		

TOTAL ENVIRONMENT INCIDENTS IN 2021 = 87					
By Type		**By Impacted Area**		**By Significance**	
Permit non-compliance	57	Water	35	High	25
Release	24	Land	10	Medium	31
Admin. error	6	Air	42	Low	31

Community Complaints in 2020 = 42	
Odour	31
Particulate	4
Noise	7

Community Complaints in 2021 = 28	
Odour	14
Particulate	2
Noise	12

On three occasions in 2021 provincial regulators levied minor administrative monetary penalties, relating either to exceedances of specific permit limits or divergences from other permit requirements at the Skookumchuck mill. Such penalties are levied when the province deems a non-compliance to have been more material in nature. Remedial actions have been taken in response to all of these penalties.

PAPER EXCELLENCE CANADA PRODUCT OFFERING

Our production consists predominantly of diverse market pulps used to manufacture a range of important consumer and commercial goods. We also produce coated printing papers, and a growing array of food grades, packaging and other specialty papers that are seeing high demand growth.

We consistently strive for environmentally sound and cost-efficient manufacturing, leveraging our diverse and high-quality fibre sources to ensure all products are tailored to specific end-use and customer needs.

Production is aligned with evolving market trends. We routinely trial potential new manufacturing opportunities that our existing paper machines could be adapted to produce. Through these initiatives, and with the benefit of strategic partnerships, we are focusing paper-product development efforts in the food grades, packaging and industrial segments.

Our biggest step forward towards an expanded position in lightweight food grades in 2021 was the major upgrade at Port Alberni, which has enabled a significantly larger focus on this type of production (see page 41).

We Produced Two Million Tonnes of Pulp and Paper in 2021

30% Paper
70% Market Pulp

Specialty Paper Sales as % of Total Paper Sales

4% in 2017
65% in 2021

OUR PRODUCTS' ENVIRONMENTAL PEDIGREE

- 100% of our fibre supply is covered by our Due Diligence System which allows us to mitigate risk
- Our mills use globally recognized chain-of-custody systems
- Primary raw material is post-industrial waste (sawmill wood chips)
- More than 80% of energy comes from green, renewable sources
- Recyclable and biodegradable at end-of-life

Pulp production is continuously adapted to customer needs and market demand, as evidenced by the recent re-introduction of unbleached kraft pulp production, launch of our premium Ultimax grade, and production of a wider range of bleached chemi-thermomechanical pulps.

Such efforts are essential in a competitive and dynamic industry, where we have seen huge demand drops for once mainstay products such as newsprint; but also emergence of significant new demand driven by factors such as growth in e-commerce and takeout food demand, and the need for alternatives to single-use plastics.

With the ongoing optimization of our mills and machines – and our own high-capacity distribution facility – we are confident in our ability to provide market-relevant and world-class products and service.

OUR PAPER PRODUCT OFFERING

Printing Papers

Coated Mechanical Papers
- #3 Advance®
- #3 Advance® Matte
- #4 Ascent®
- #4 Ascent® Matte
- #4 Pacificote®
- #5 Electracote®

Directory Paper
- Catalyst®

- Each brand offers a unique combination of attributes, delivering excellent on-press performance, aesthetic advantages, and a variety of basis weights and finishes
- End uses include high-quality magazines, catalogues, reports, brochures and other marketing materials
- Both lightweight and high bulk options, performs well on press and accommodates full colour graphics and higher ink loads

Specialty Food Grade Papers

- Bistro® Bag (bleached and natural)
- Bistro® Wax (bleached and natural)
- Bistro® Foil
- Bistro® Freezer
- Bistro® Butcher
- Bistro® OGR (oil grease resistant)

- Quick service restaurant, takeout and grocery applications
- End-uses include food wrappers, basket liners, deli paper, bakery tissue
- Manufactured with clean virgin wood fibres
- Available with Biodegradable Products Institute (BPI) certification and food safe compliant meeting FDA food contact requirements for packaging papers, aqueous and fatty foods and dry foods

Packaging Papers

- SuperLite™ Paper
- SuperLite™ Liner
- SuperLite™ Medium
- Hero

- End uses include take-out containers, pizza boxes, coffee cup sleeves, clamshell containers
- Ultralightweight alternative to traditional container board products
- Also used for internal packaging and shipping materials

Industrial Papers

- Range of Customized Solutions

- Various specialized applications: building/construction wraps, product wrapping and shipping materials (interleave and void fill), tapes, and industrial print applications

OUR PULP PRODUCT OFFERING

Northern Bleached Softwood Kraft Pulps	Our BC pulp mills produce high-strength NBSK pulp. Skookumchuck NBSK contains mainly fine fibers and exhibits fast refining response; it is appreciated by tissue makers for its excellent softness, and water absorption with decent bulk. Howe Sound NBSK, and Crofton NBSK with high Douglas fir content, are well suited to paper grades that require balanced tensile/tear; while Crofton NBSK with high red cedar demonstrates superior tensile strength and folding endurance that is well suited to non-woven, specialty tissue, and folding boxboard products.	All NBSK grades are excellent reinforcement pulp suitable for various kinds of paper grades. Preferable end uses for each grade: • **Skookumchuck NBSK:** tissues, specialty fine paper • **Howe Sound NBSK and Crofton (high Douglas fir):** packaging paper and board • **Crofton NBSK (high red cedar):** non-woven and specialty tissue
Chemi-Thermomechanical Pulps (bleached & unbleached)	The flexible BCTMP production method at our Meadow Lake mill, and the availability of both softwood and hardwood fibre, enable process adjustments to achieve specific product attributes, with less dependence on the characteristics of the fibre used.	• Commonly used for interior layer of folding boxboard, cup and plate, and Bristol • Printing and writing, coated and uncoated wood free, Munken paper • Tissue and towel • Being trialed successfully for use in molded food-packaging applications
Northern Unbleached Kraft Pulp	Our Howe Sound mill recently resumed production of an unbleached grade of our northern softwood kraft pulps. Since China ended imports of wastepaper, this is an attractive alternative means for manufacturers there to add strength to end-use products.	• Main end-uses are packaging paper and board • Other applications include paper bags, paper sacks and flower bouquet wrapping

CARBON NEUTRAL PAPERS FOR 15 YEARS

If you're a close follower of sustainability issues in North America, you almost certainly know of Toronto-based Corporate Knights – the "voice of clean capitalism" – and of its flagship magazine of the same name.

And if you're among the readers who receive the magazine as an insert in the *Globe & Mail*, *Washington Post* or *Wall Street Journal*, or who picks it up at newsstands across the continent, then you've held Paper Excellence-manufactured paper in your hands.

But not just any Paper Excellence Canada product. *Corporate Knights* typically prints on a Sage® grade of paper. Sage® papers have all the same core environmental attributes as our other papers and pulps. They are produced using fibre from sustainably managed forests; and in mills fueled by high proportions of renewable energy, and with a sustained focus on driving carbon emissions down even further.

But our Sage®-designated papers go further, in that they are made with 100 per cent third-party certified fibre and are manufactured carbon neutral.

To meet that second criteria, we calculate our carbon emissions associated with each tonne of Sage® product sold, and then purchase an equal quantity of high-quality and typically third-party validated offsets. Our offset purchases have supported energy efficiency, solar and wind electricity generation, methane capture and re-forestation projects.

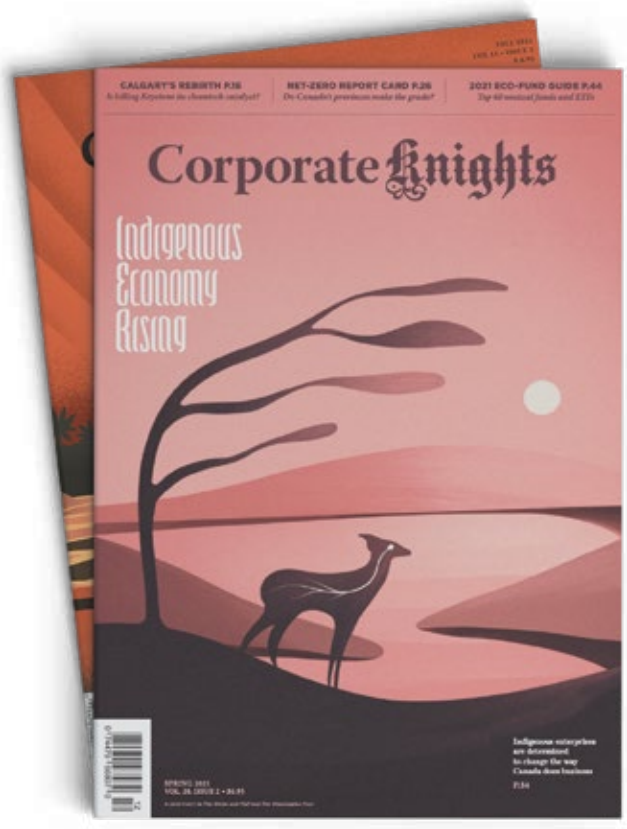
Sage® is a compelling product offering in an era when more-and-more businesses are focused on driving down emissions not only in their own operations but across their supply chains.

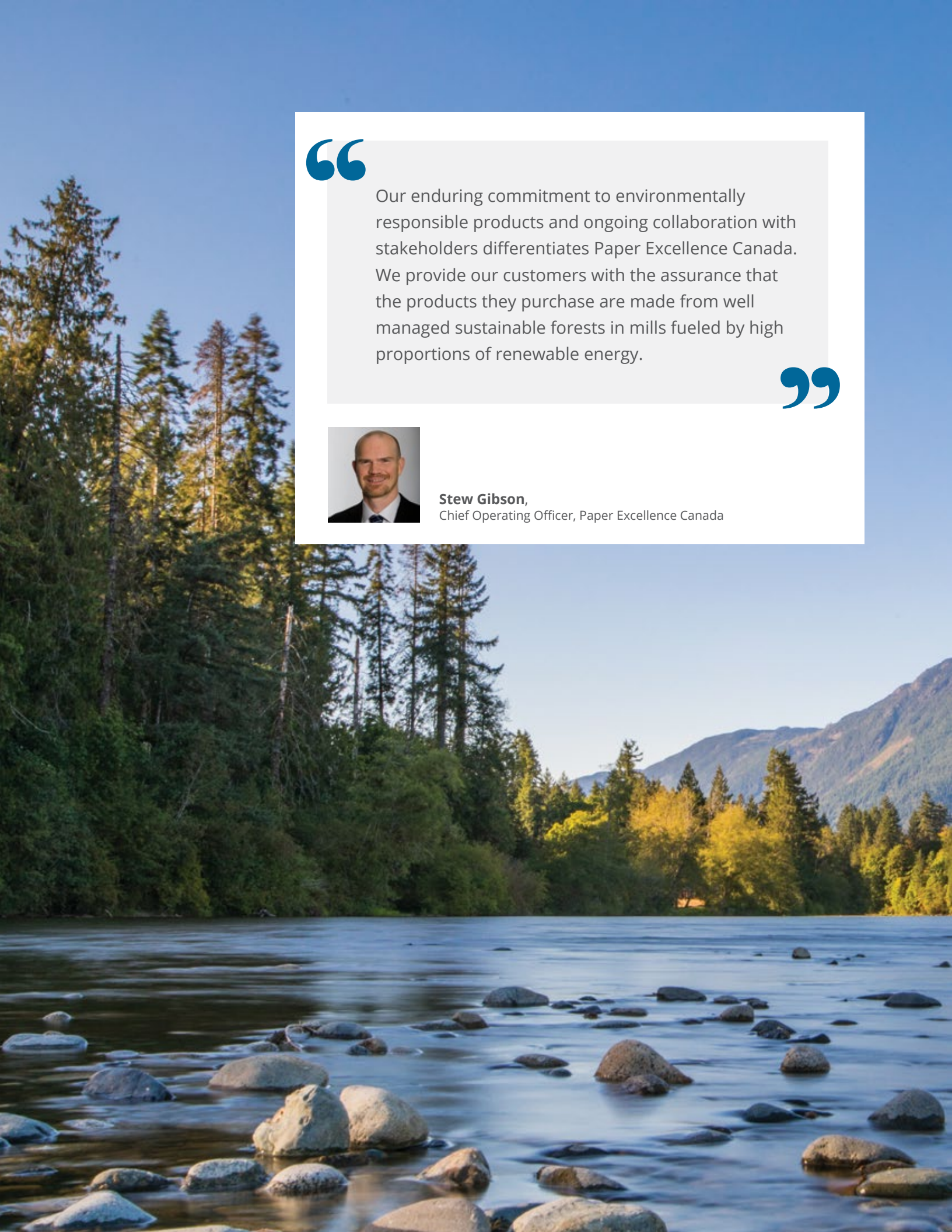
And what makes it even more remarkable is how long we've offered customers this option: We first launched what we then referred to as "Catalyst Cooled" paper in partnership with *Rolling Stone* magazine in 2007.

Whatever your preferred reading materials may be, Sage® grade papers can be the answer if you're looking for a high-quality product that won't inflate your carbon budget.

> Carbon-neutral manufacturing is likely to become table stakes as more and more companies get serious about meeting science-based carbon reduction targets, and take a hard look at the emissions profile all the way up and down their supply chains.

Toby Heaps,
CEO, Corporate Knights





> Our enduring commitment to environmentally responsible products and ongoing collaboration with stakeholders differentiates Paper Excellence Canada. We provide our customers with the assurance that the products they purchase are made from well managed sustainable forests in mills fueled by high proportions of renewable energy.

Stew Gibson,
Chief Operating Officer, Paper Excellence Canada

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