

CANADA'S WOOD PELLETS

WPAC FIBRE STUDY

British Columbia Pellets are Responsibly Sourced

Grinding residuals.

In 2021, the Wood Pellet Association of Canada (WPAC) released its Sustainability Commitment. One of the 10 commitments is respecting the value of forests by ensuring trees go to their highest and best use. That means sourcing 100 percent of the sector's fibre from the residuals of sawmilling and harvesting activities as well as wood that cannot be used for any other purpose. Removing that wood improves forest health and/or minimizes the risk of forest fires.

In 2022, WPAC commissioned a study to examine the range of feedstocks for the forest sector produced from British Columbia forests and the relationship between the feedstocks, with a focus on the feedstocks used by the pellet industry.

Together, respected forest experts and Registered Professional Foresters, Professor Gary Bull, Dr. Jeremy Williams, Dr. Jim Thrower, and Mr. Brad Bennett have more than 125 years experience in the forest sector. They analyzed data from government and industry, confidential commercial data, and Sustainable Biomass Program (SBP) audit reports and conducted personal interviews with individual pellet plant operators. They also reviewed the data for virtually every truckload of fibre for each pellet mill in the province and were able to trace forest-based residuals down to the forest harvesting block for each mill.

Their study confirms that **85 percent of the fibre for pellets comes from the by-products of sawmills and allied industries and, of the remaining 15 percent, 11 percent is from low quality logs in the forest.** The study also proves that low quality logs only end up in the pellet facilities when there is no other option for those logs.

100 PERCENT OF WOOD PELLETS COME FROM RESIDUALS, BUSH GRIND, AND LOW-QUALITY ROUNDWOOD

The notion of harvesting whole stands of timber or displacing higher value forest products for the purpose of producing wood pellets to offset the burning of fossil fuels in overseas markets is counter to the overall economic and environmental objectives of using wood pellets. The findings of the 2022 British Columbia fibre study help to dispel any concerns that forests are being harvested for the sole purpose of creating wood pellets and illuminate how the principle of highest and best use of every log is upheld.

BREAKING DOWN RESIDUALS: 85%

78% - Sawmills:

The majority of non-forest derived supply is made of residuals received from sawmills. A 2019 estimate from the British Columbia government records

indicated that for every log that enters a sawmill in British Columbia, over half of it (52 percent) becomes chips, sawdust, and shavings. Historically, these residual by-products of the sawmilling process were viewed as waste and prior to regulation on open-air incineration (introduced in the late 1990s) much of it was burnt. Today, most, if not all of these residuals are either sold to pulp, biomass, or pellet producers, or used on-site by sawmills to generate energy. With the number of British Columbia pulp mills and their associated capacity for sawmill residuals declining (42 percent between 2000 and 2019), the pellet industry can play an increasingly important role by providing a market for British Columbia residuals.

The pellet industry sources an estimated **85% of its fibre** from the by-products of the sawmills and allied industries.

The remaining **15%** is supplied directly from the forest and includes:

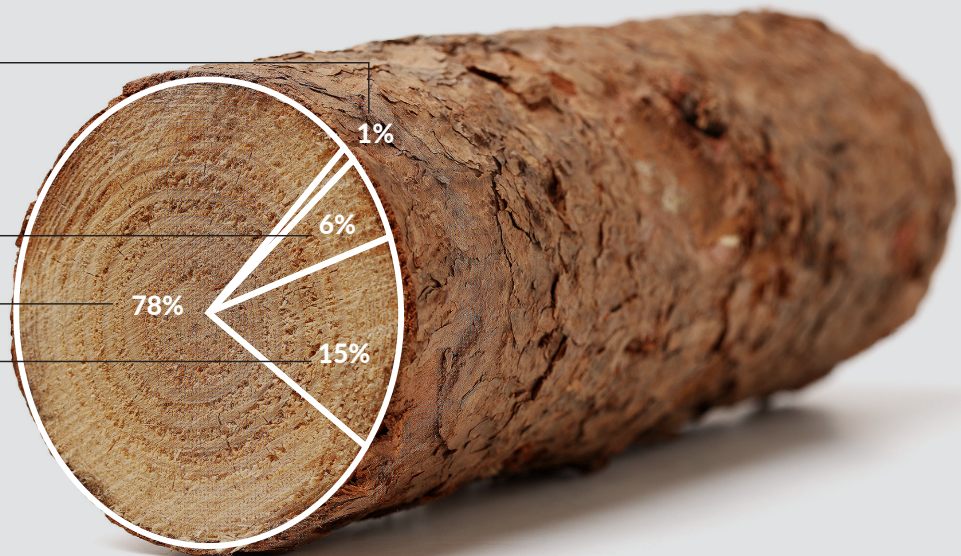
- Low-quality logs (**11%**)
- Bush grind (**4%**)

Other sources

Residuals from plywood plants, pulp mills, secondary remanufacturer

Residual from sawmills

Forest derived
• Low-quality roundwood **11%**
• Bush grind **4%**



6% - Pulp Mills, Plywood Plants, and Secondary Remanufacturers:

In addition to the supply from lumber-producing sawmills, residual feedstock comes from other forest product manufacturers, including waste veneer strips from plywood plants, fines from screening wood chips at pulp mills, and trim ends from remanufacturing plants (facilities that remanufacture finished lumber into other products).

1% - Other:

The remaining 1 percent of feedstock is waste wood fibre from whole log chipping operations and clean-up of log yards at various wood processing plants throughout the interior.

LOW QUALITY LOGS AND BUSH GRIND: 15%



Pulp Logs:

Pulp logs are generally defined as those that do not meet a sufficient size or grade to be utilized as a sawlog. Pulp logs can be ground into biomass, which can be used by biomass electricity or pellet plants. However, because biomass has a much lower value than pulp, this will only happen when the transportation cost to a pulp mill is prohibitive and there is a closer market for biomass fuel.



Bio-logs:

Bio-log is a new term used to differentiate the small logs, tree chunks, and other miscellaneous pieces of wood fibre that are too small or poor quality to make pulp grade. Bio-logs are a by-product of standard timber harvesting operations and include both residual stems and pieces from on-site processing of sawlogs as well as non-merchantable stems that were incidentally cut or knocked down during the falling and harvesting process. This material is currently rarely recovered as it is low value and must be very close to the final destination to be economic to remove.



Bush Grind:

Bush grind hog (or hog fuel) as a forest-derived wood product is produced in the form of wood debris that is mechanically ground in the forest and delivered to an end-user in ground form. This contrasts with wood fibre delivered in solid form to a pellet plant or biomass power plant (e.g., bio-logs) where it is ground into hog at the destination before being consumed in the plant.

WOOD PELLETS BY THE NUMBERS

IN 1989 THE **FIRST INDUSTRIAL-SCALE WOOD PELLET FACILITY** IS BUILT IN BRITISH COLUMBIA



CANADA IS THE **SECOND LARGEST PRODUCER OF WOOD PELLETS** IN THE WORLD



BY 2022, THERE ARE **12 OPERATING PELLET PLANTS** IN BRITISH COLUMBIA



2500 DIRECT AND INDIRECT JOBS.

\$750 MILLION IN ECONOMIC ACTIVITY.



THE PLANTS PRODUCE **2.0 MILLION OVEN DRIED TONNES (ODTs)** OF PELLETS ANNUALLY.



\$500 MILLION IN CAPITAL INVESTMENTS OVER THE LAST DECADE

THE WOOD PELLET SECTOR...

- 1 UTILIZES AND CREATES VALUE** FROM RESIDUALS PRODUCED BY OTHER MILLS
- 2 WORKS WITH INDIGENOUS COMMUNITIES AND OTHER COMMUNITIES** TO IMPROVE FOREST HEALTH, SUPPORT LOCAL ECONOMIES, AND STRENGTHEN COMMUNITY RESILIENCY
- 3 CREATES AN ADDITIONAL REVENUE STREAM** FOR SAWMILLS AND OTHER FACILITIES
- 4 ELIMINATES SMOKE AND PARTICULATE EMISSIONS** ASSOCIATED WITH BEEHIVE BURNERS OR LANDFILLS
- 5 UTILIZES LOW QUALITY BIOMASS** THAT COMES FROM NATURAL DISTURBANCES
- 6 CREATES VIABLE ECONOMIC OPPORTUNITIES AND EMPLOYMENT**
- 7 CONTRIBUTES TO MANAGING WILDFIRE RISKS**
- 8 INCREASES THE SUBSTITUTION OF RENEWABLE ENERGY (BIOMASS)** FOR FOSSIL FUEL (COAL)

SUSTAINABILITY IN ACTION: THREE CASE STUDIES

SKEENA BIOENERGY: NECESSITY IS THE MOTHER OF INVENTION

Following the closure of the last pulp mill in their region, Skeena Sawmill faced significant challenges in managing both the mill residuals and the low-quality fibre in their regional forest profile. The construction of the Skeena Bioenergy plant in 2022, greatly boosted the social, environmental and economic viability of the sawmill by eliminating the past practice of landfilling mill residuals, reducing harvest waste and slash burning, and adding 22 direct jobs to the Skeena operations. Today the new wood pellet facility consumes all of the sawmill's residuals, has struck a partnership with the Kitsumkalum First Nation's logistics park, and sells pellets locally to over 150 users, including a local school and a number of First Nation communities.

"Without the pellet facility the entire operation would not be viable both economically and socially. Leaving vast amounts of waste on-site, as was done in the past to be burnt, is frankly unacceptable to the public."

- Roger Keery, President of Skeena Sawmills

DRAX BURNS LAKE: THE POWER OF PEOPLE, PARTNERSHIPS, AND PELLETS

Built in 2011, the Drax Burns Lake facility is the largest wood pellet facility in the province. The original feedstock strategy for the plant was focused on local sawmill residuals. However, a new feedstock and role for the facility arose with the mountain pine beetle epidemic, which produced large quantities of low-quality roundwood and forest residues. Extracting these low-quality portions of the stands made it more financially attractive to access the higher quality sawlogs and help mitigate the risk of wildfire. By providing a market for what had been a waste component of these stands, the pellet mill facilitated the salvage of the dead pine for both pellet and sawlog use. Today, the Burns Lake pellet facility continues to provide an outlet for low-quality roundwood and forest residues in the form of residuals, while sourcing the majority of its feedstock from local sawmills.



"Our operation would not be viable and the 70 direct manufacturing and harvesting jobs would be lost."

- Klaus Pouselt, Owner Tatsa Timber

"As a community forest that surrounds much of the community's recreational playground, if we didn't practice complete utilization we would hear about it in town from the public. Without the Burns Lake Drax facility, we wouldn't have a home for a significant component of our low-grade harvesting profile and the level of waste would not be socially acceptable."

- Frank Varga, General Manager, Burns Lake Community Forest, Owned by the Village of Burns Lake, which equally shares its revenue with the Tsi'lkazKoh and Wet'suwet'en First Nations communities

DRAX MEADOWBANK: ENSURING TREES GO TO THEIR HIGHEST AND BEST USE

The Drax Meadowbank facility, located 60 kilometres south of Prince George, was built adjacent to the Dunkley Sawmill, one of the largest sawmills in North America. By providing a revenue stream for sawmill residuals, the pellet facility has allowed the Dunkley operation to extract more value from

each log, providing a competitive advantage for the lumber producer. The Meadowbank facility is also close to five active pulp mills in Quesnel and Prince George. As such, and unlike the Burns Lake plant, the Meadowbank pellet facility cannot compete with pulp producers to access pulp logs. Despite this, Meadowbank utilizes 40 percent forest derived residuals by focusing on the lowest-quality logs and residuals not used by the pulp mills. Two-thirds of the forest derived feedstock utilized by the facility is in the form of bush grind. The remaining portion of forest-derived feedstock is focused on low quality hardwood and other roundwood that has no other market.

“The facility cannot compete with the pulp mills in the region for pulp logs. Our operation focuses on low-quality hardwood and other roundwood that is not used by the pulp mills. Drax utilizes these inventories as a back-up supply when there is an interruption in the supply of sawmill-based residuals. The end result is roundwood inventories may remain untouched for a period of time when the flow of sawmill residuals and bush grind logging waste is strong.”

– Andrew Meyer, Vice-President
Fibre Procurement, North America, Drax

Despite its small size, the wood pellet industry plays a critical role in the long-term success of the forest sector and forestry communities in British Columbia:



Pellets create value by using sawmill residuals, improving utilization of forest resources.



In doing so, **they create additional revenue streams**, improving economic opportunities and employment, especially in remote communities.



While the majority of pellet feedstock comes from sawmill residuals, **pellet facilities also utilize low quality biomass material directly from the forest.**

This includes residual material that doesn't meet saw or pulp log specifications and would otherwise be left or burnt.



Pellets contribute to managing wildfire risks and sound forest management by improving the economic viability of salvage harvesting.



In their end use, **pellets increase the substitution of renewable energy (biomass)** for fossil fuel (coal) and improve resiliency of local communities.