# CANADA'S WOOD PELLETS

## Responsible, Renewable Clean Energy

Today in Canada's forest sector, an increasing amount of forest residuals left over after harvesting, sawmilling waste, and low quality logs (traditionally left as waste) are being turned into wood pellets. These pellets are sold around the world to produce clean energy, displace fossil fuels, and support efforts to meet important global climate change targets.

> The United Nations Intergovernmental Panel on Climate Change (IPCC), the world's leading authority on climate change, has recognized the significant GHG mitigation potential of biomass — as much as 80 to 90 percent — provided that it is developed sustainably and used efficiently. [1]

1   Chum, H. et al. https://www.ipcc.ch/site/assets/uploads/2018/03/Chapter-2-Bioenergy-1.pdf

## PELLETS BY THE NUMBERS

### 100%
OF PELLETS ARE MADE FROM SAWMILL WASTE, RESIDUALS LEFT OVER FROM HARVESTING OR LOW-QUALITY LOGS

### 4%
OF CANADA'S ANNUAL HARVEST GOES TO WOOD PELLET PRODUCTION

### 1,566
CANADIANS EMPLOYED

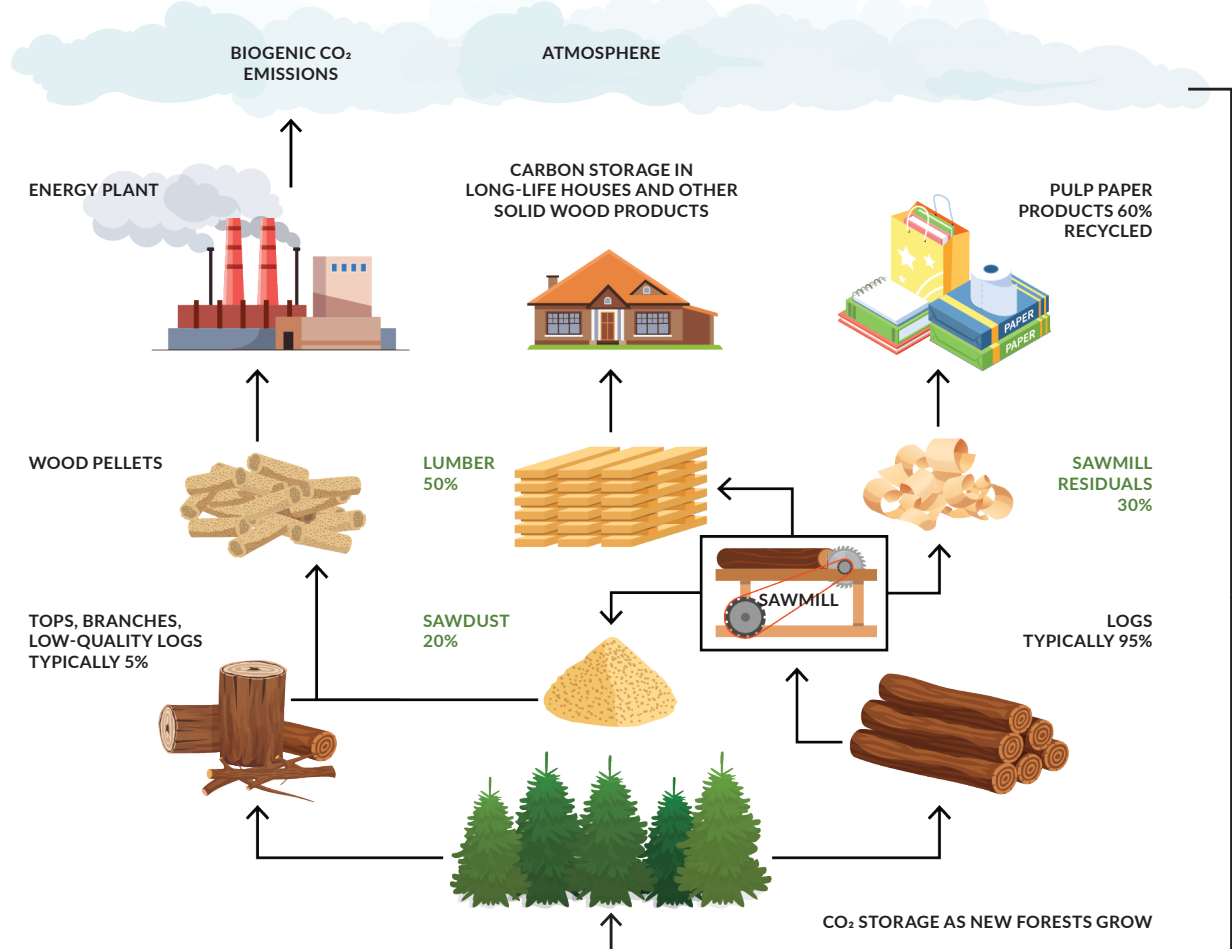### 80–90%
REDUCTION IN GHG EMISSIONS COMPARED TO COAL

### 100%
3RD PARTY CERTIFIED TO INTERNATIONALLY RECOGNIZED PROGRAMS

**WOOD PELLET**
ASSOCIATION OF CANADA

## CO₂: FOSSIL FUELS VERSUS BIOMASS

While both fossil fuels such as coal and biological materials like wood pellets emit carbon dioxide ($CO_2$), it's ultimately the source of that $CO_2$ that determines the impact it will have on the atmosphere. Coal is a very efficient fuel, in that it provides more energy per kilogram than biomass, but it is not a renewable one. Coal is mined from carbon sinks that took millions of years to form, so when it is burned to produce energy it increases the total amount of $CO_2$ and other potent GHGs in the atmosphere. Energy made from woody biomass comes from burning carbon drawn out of the atmosphere by trees within the last 150 years. Most of the carbon from those trees is being held in long-lived forest products and, in most jurisdictions in Canada, harvested areas are reforested and start drawing in $CO_2$ from the atmosphere within a year of harvesting (see Figure 1). Those factors make woody biomass a renewable energy source and an important alternative in the transition away from

**Figure 1** The carbon cycle in a sustainably managed Canadian forest



BIOGENIC CO₂ EMISSIONS

ATMOSPHERE

ENERGY PLANT

CARBON STORAGE IN LONG-LIFE HOUSES AND OTHER SOLID WOOD PRODUCTS

PULP PAPER PRODUCTS 60% RECYCLED

WOOD PELLETS

LUMBER 50%

SAWMILL RESIDUALS 30%

TOPS, BRANCHES, LOW-QUALITY LOGS TYPICALLY 5%

SAWDUST 20%

SAWMILL

LOGS TYPICALLY 95%

CO₂ STORAGE AS NEW FORESTS GROW

## RESPONSIBLE SOURCING

Canadian wood pellets are produced entirely from the residuals of sustainably managed forests. Canada's forests are some of the most resilient and sustainably managed in the world. They are subject to stringent environmental regulation, careful management, and extensive third-party certification.

The Canadian wood pellet sector exists primarily to make better use of forests that are already being harvested. Canada's forest sector harvests less than one percent of Canada's commercial forests each year and, of that, less than four percent is used to make pellets. Pellets are made entirely from sawdust, shavings, harvest residues, and low-quality logs that have been rejected by the other traditional forest sectors — sawmills, pulp mills, and panel-board plants.

## MAXIMIZING THE VALUE OF EVERY TREE

Canada's forest industry is highly integrated and maximizes the value of every tree harvested. This means that producers assess the tree quality to determine what products they will make from each log. Multiple co-products are created when a sawmill processes a log (see Figure 2).

The primary product is lumber, which uses about 45 percent of each log. Thirty to 35 percent of each log goes to pulp chips, which are sold as raw material for pulp mills; 20–25 percent of each log becomes sawdust and shavings which are used to make pellets; and five to 10 percent of the log is bark, which is mainly used for energy for lumber and biomass drying, but can be used in pellets, too.
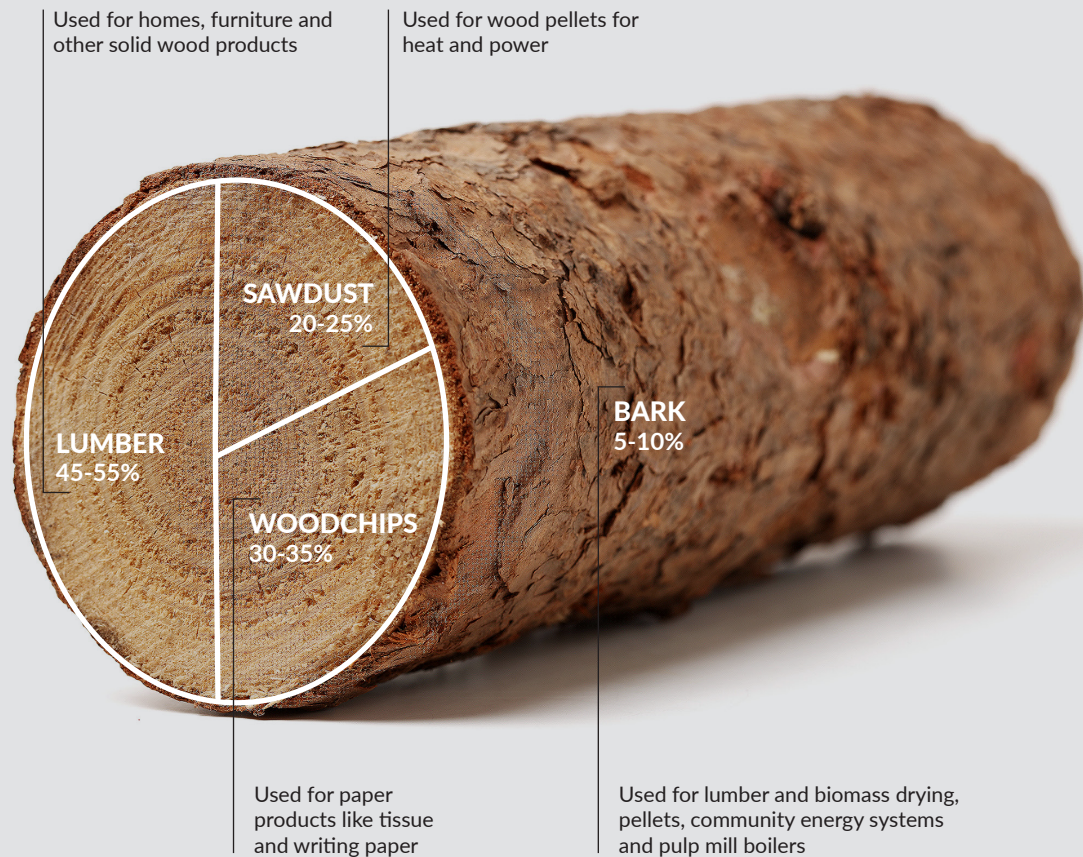
The pellet industry has enabled sawmills to improve forest utilization and to maximize both jobs and value from the forest for the benefit of all Canadians.

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.

The 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.

**Figure 2** Products from a typical log in a modern sawmill

Used for homes, furniture and other solid wood products

Used for wood pellets for heat and power

SAWDUST
20-25%

BARK
5-10%

LUMBER
45-55%

WOODCHIPS
30-35%

Used for paper products like tissue and writing paper

Used for lumber and biomass drying, pellets, community energy systems and pulp mill boilers

## THIRD PARTY ASSURANCE

Global customers are committed to sustainability throughout their supply chains. Ensuring the legality and sustainability of their biomass supply is critical to their business models.

Canadian pellet producers typically do not directly manage forests; however, they ensure the sustainability of their fibre purchases by dealing exclusively with reputable suppliers and knowing where their supplies come from. This is backed up by internationally recognized third-party forest management certifications such as the Forest Stewardship Council (FSC) and the Programme for the Endorsement of Forest Certification (PEFC), which endorses two Canadian forest management certifications: Canadian Standards Association (CSA) and Sustainable Forest Initiative (SFI).

Additionally, Canadian wood pellet producers who export to Europe and Asia are third-party certified to the standards of the Sustainable Biomass Program (SBP). This program was set up in 2013 to provide assurance that woody biomass — mainly wood pellets and wood chips used for large-scale energy production — is sourced from legal and sustainable sources. SBP recognizes FSC and PEFC forest management standards such as SFI and CSA. When it comes to forest certification, Canada leads the world with an estimated 158 million hectares certified (see Figure 3).

**Figure 3** SFM Certification in Canada — 2000–2021 | 2021 Year-end



Net Totals for Canada
Double counting of areas certified to more than one standard has been removed

Source: https://certificationcanada.org/en/statistics/canadian-statistics/