

**Voluntary Report** – Voluntary - Public Distribution

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**Report Name:** Canada Wood Pellet Annual

**Country:** Canada

**Post:** Ottawa

**Report Category:** Biofuels, Wood Products

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**Report Highlights:**

Canadian wood pellet production is forecast to remain stable for 2022 at 3.5 million metric tons. Canada's wood pellet exports are forecast to grow five percent on increased demand from Europe and Asia. Canadian domestic consumption will see little growth as commercial scale use of wood pellets for heat and energy remains limited. In July 2022, Canada released the final Clean Fuel Regulations which focuses exclusively on liquid fuels at this time. Domestic policy on solid biomass, including improved access to biomass boilers, is needed to increase domestic demand for wood pellets.

## I. Executive Summary

Canada released the final [Clean Fuel Regulations \(CFR\)](#) in July of 2022 which focuses exclusively on liquid fuels. Solid fuels, such as wood pellets, are not included in the Regulations at this time. While Canada has additional policies which consider solid biomass as part of the climate and sustainability landscape, industry feels that possible future iterations of the CFR should include fuel types beyond just liquid fuels. Increased federal activity in including solid biomass as part of the climate and sustainability discussion will help to support industry expansion.

Canada's wood pellet market is primarily export focused with domestic production significantly outpacing domestic demand. In 2021, Canada is estimated to have produced 3.5 million metric tons (MT) of wood pellets with domestic use estimated at 500,000 MT. FAS/Canada forecasts production to remain stable on 2021 numbers in 2022. Large-scale commercial wood pellet use for heat and energy is limited in Canada with smaller-scale industrial and residential use supporting demand.

Approximately 90 percent of production was exported and exports for 2022 are forecast to grow due to increased demand from Europe and Asia. British Columbia holds almost 50 percent of Canada's wood pellet production capacity. Drax has charter bulk vessels operating the trans-Pacific route from British Columbia to Japan providing efficient shipping logistics between the two countries.

Labor constraints and ongoing supply chain challenges continue to impact the industry. Domestic and international policies on forestry, sustainability, and climate friendly fuels also remain a factor in industry expansion.

## II. Policy and Programs

### *Clean Fuel Regulations*

In December 2020 the Government of Canada published the proposed [Clean Fuel Standard \(CFS\)](#) with the goal to reduce greenhouse gas (GHG) emissions. While gaseous and solid fuels were included in the original 2016 discussions on developing a standard, the 2020 proposal focused solely on liquid fuels. The wood pellet industry told FAS/Ottawa that they feel the proposed CFS lacks policies promoting the adoption of lower emission solid fuels. The final regulations were published in July 2022 as the [Clean Fuel Regulations \(CFR\)](#) and only addresses liquid fuels at this time.

### *Agricultural Clean Technology Program*

As part of the Adoption Stream of the CAD 165.7 million [Agricultural Clean Technology Program](#), CAD 50 million is allocated to incentivize the purchase of more efficient grain dryers and CAD 10 million for farms to move to cleaner energy for power. This will include biomass powered if the biomass meaningfully reduces GHG generation. The program is cost-shared with a general ratio of 75 percent from the program and 25 percent from the applicant for non-profit applicants and 50/50 for for-profit applicants. Due to popularity, the Adoption Stream has suspended applications. The re-opening of the application process dependent on renewed funding availability.

### *Clean Fuels Fund*

The CAD 1.5 billion [Clean Fuels Fund](#) will support new investments and expansions of existing clean fuel production facilities. This will include projects designed to help establish biomass supply chains, including forest biomass feedstocks. Calls for funding proposals related to the biomass supply chain portion of the fund opened on August 25, 2022 and will close November 23, 2022, except for Indigenous applicants where the application portal will remain open as long as funding remains available. Funding agreements with successful applicants will commence in Spring 2023 with the program concluding the end of March 2026.

### *Expanding Market Opportunities Program*

The [Expanding Market Opportunities Program](#) was announced as part of Budget 2019. It created two project funding streams aimed at international or domestic markets. The program also combined three previously separate programs: The Canada Wood Export Program, The North American Wood First Initiative, and The Leadership in Environmental Advantage in Forestry. Through this program the Wood Pellet Association of Canada received over CAD 1 million in funds for projects. The program is now closed, and a similar program was not included in Budget 2022.

### *Investments in Forest Industry Transformation*

The [Investments in Forest Industry Transformation](#) program was initiated in 2010 to encourage innovation in the forest products sector. The program also now focuses on low-carbon projects that would result in new or diversified revenue streams for the forest industry including in bioenergy. Budget 2019 committed an additional CAD 82.9 million to continue the program to 2022 though Budget 2022 did not provide for additional funds in the program. However, Budget 2021 did provide for CAD 54.8 million over two years beginning in 2021-22 to increase program capacity. Applications for the program are currently closed.

### *Indigenous Forestry Initiative*

In Budget 2019, the Canadian Government provided for expansion of funding of the [Indigenous Forestry Initiative](#) program with an additional CAD 15.6 million budgeted. Of this, CAD 6.8 million has already been allocated, CAD 6.2 million is available for the 2021-2023 period, and CAD 1 million is available per year beyond 2023. The program is available to Indigenous applicants or to non-indigenous who are endorsed by and working with Indigenous partner(s). Biomass for heat/energy and pellet manufacturing are amongst the eligible projects for funding.

### *Net Zero Accelerator Initiative*

The [Net Zero Accelerator Initiative](#) provides up to CAD \$8 billion to support Canada's targets to reduce GHG emissions by 40-45 percent by 2030 and to reach net zero by 2050. The program contains three investment pillars: 1) Decarbonization of large emitters, 2) Industrial transformation, and 3) Clean technology and battery ecosystem development. While not explicitly aimed at the wood pellet industry, projects involving biomass for heat and energy could be eligible under the program if they fall within the three pillars and meaningfully provide for GHG reductions.

### *Low Carbon Economy Fund*

The [Low Carbon Economy Fund](#) was first announced as a CAD \$2 billion fund in 2017. As part of Budget 2022, the Canadian government committed to expand the fund through a CAD 2.2 billion recapitalization over seven years via two separate streams. The Low Carbon Economy Leadership Fund provides funding to provinces and territories who have adopted the *Pan-Canadian Framework on Clean Growth and Climate Change* and the Low Carbon Economy Challenge provides funding to a variety of recipients endeavoring to reduce emissions and generate clean growth supporting the *Framework* and Canada's climate action plan. While not explicitly aimed at the wood pellet industry, projects involving biomass for heat and energy could be eligible if they meaningfully reduce GHG emissions.

### *Quebec Green Hydrogen and Bioenergy Strategy*

Quebec's [Green Hydrogen and Bioenergy Strategy](#) focuses on reducing GHG emissions by slowing petroleum products consumption and achieving carbon neutrality by 2050. Under the bioenergy portion of the strategy, Quebec notes potential for biomass, including wood pellets, as a heat and energy source to contribute to reductions targets. Depending on evolution of the strategy, this could see increased support for the use of wood pellets in heat and energy within the province over the coming decades.

### *Ontario Forest Biomass Action Plan*

In March 2022, the Government of Ontario released its [Forest Biomass Action Plan](#). The plan notes that forest biomass is mainly used for heat and energy in Ontario but highlights that diversification of end uses should be a target. The plan continues to highlight supporting demand for forest bioenergy and bioproducts as an objective, but it is not clear if this would support growth in use of wood pellets or for novel bioenergy production from forest biomass. The plan does call for the development of a provincial bioheat strategy to increase production and consumption of biofuels for heat.

### *New Brunswick Crown Lands Harvest Forest Biomass Policy*

For Crown lands<sup>1</sup> within the province of New Brunswick, forest biomass is defined as residual treetops, branches, foliage, non-merchantable wood stems of trees and shrubs, pre-existing dead woody material, and flail chipping residue. Full-tree chipping is not considered as eligible biomass. Licensees operating on Crown lands are required to adhere to the provincial [policy](#).

### *British Columbia Allowable Annual Cut (ACC) and Residual Fibre Utilization Policy*

A minimum of once per decade, the British Columbia chief forester determines the [allowable annual cut \(ACC\)](#). The ACC is determined by timber supply area and tree farm license and may also have specifications by timber type and terrain within the management unit. In an effort to better utilize residual waste and to mitigate fire risk, British Columbia implemented a [Residual Fibre Utilization Policy](#). The target is to promote business-to-business relationships which will see primary harvesters and secondary users (such as pulp mills, pellet plants, bioenergy facilities, etc.) coordinate to better utilize the residual fiber remaining after primary harvest. The policy also accounts for the need for some residual waste to remain to support biodiversity.

### *Sustainability*

In September 2022, the Wood Pellet Association of Canada released [a study](#) completed by forestry academics and Registered Professional Foresters evaluating the sustainability of the BC

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<sup>1</sup> In Canada, public lands are referred to as Crown land. Crown land may be federal or provincial/territorial depending on which level of government has jurisdiction for the administration of the land. Within a province or territory there will be a mixture of federal and provincial/territorial Crown land.

wood pellet industry. Key findings of the study were that 85 percent of the fiber sourced by wood pellet mills is from sawmills and associated industry by-products, 11 percent from low quality logs with no other cost-effective outlet, and 4 percent bush grind (e.g., branches, log trim ends, foliage, and bio-logs, those which do not meet the quality specifications of the higher-value forest product producers). The majority of Canadian wood pellet mills are third-party certified under the [Sustainable Biomass Program](#). The majority of forestry activity in Canada occurs on Crown lands, predominantly provincial/territorial, and is subject to provincial/territorial legislation that also encompasses the federal [legislation](#) applicable to federal Crown land forests and international agreements where Canada is a participant; approximately 94 percent of forest land ownership in Canada is Crown land (federal or provincial/territorial). Forestry activity does occur, on a more limited basis, on privately owned land across the country where municipal regulations typically govern activity. Depending on the province/territory, provincial/territorial governments may also have over-arching legislation applying to forest management practices on private lands within their jurisdictions.

### *Certification*

Voluntary standards for grading of wood pellets are maintained by the [Canadian Standards Association](#) under CAN/CSA-ISO 17225 Part 2 Standard. Residential use wood pellets in Canada can be certified under a third party verification program, [CANplus](#), with the Wood Pellet Association of Canada as the owner of the trademark as a national licensor under ENplus. CANplus follows the ENplus standards.

### **III. Market**

The Canadian wood pellet industry is export-oriented with production capacity currently exceeding domestic demand. Commercial use of wood pellets for energy and heat production remains limited in Canada. Solid biomass is currently not included in Canada's [Clean Fuel Regulations](#). While gaseous and solid fuels were included in the original 2016 discussions on developing a standard, the final regulations focus entirely on liquid fuels at this time. The solid biomass industry in Canada is hopeful that future climate-focused regulations around heat and energy will include the sector. Industry feels there is potential to reduce greenhouse gas emissions should Canada's remaining coal-fired power plants undergo the conversion to being powered by wood pellets.

Currently, coal-fired plants remain in operation in Alberta, Saskatchewan, New Brunswick, and Nova Scotia. These will be shut down at end of life or retrofitted with carbon capture and storage technology to meet federal emissions requirements. However, whether these plants convert to other power sources, are fitted with carbon capture and storage, or simply shut down will be dependent on the evolution of policy as those plants approach end of life. Per [Canada Energy Regulator](#), Alberta has signaled that coal plants will be converted to natural gas, Saskatchewan

has retrofitted one plant with carbon capture and storage technology while other plants will be converted to run on renewables, and New Brunswick and Nova Scotia have indicated they will focus on hydro power and wind power as coal is phased out.

Across Canada, Canada Energy Regulator and Natural Resources Canada estimate that only 1.4 percent of electricity generation comes from an aggregate category of biomass/geothermal. Separately, Natural Resources Canada notes that the contribution of forest biomass to Canada’s energy supply is an estimated five to six percent. The largest wood pellet power generating plant in North America is in Ontario and uses an estimated 100,000 metric tons (MT) of wood pellets per year to generate 140 gigawatt hours (GWh) of power for the Ontario grid. The plant was a former coal burning plant retrofitted to burn wood pellets. The plant’s contract with the province’s electricity operator is due to expire in 2024. The Province of Ontario announced a [Forest Biomass Action Plan](#) in March 2022 part of which focuses on biomass for heat and energy. Although this plan doesn’t specifically mention growth of wood pellet production and use of wood pellets for heat and energy, it does highlight bioheat projects utilizing wood pellets and indicates support for continuation of current biomass installations connected to the Ontario grid. Natural Resources Canada noted that in 2018 production data, 23.3 percent of renewable energy produced in the country came from solid biomass; inclusive of but not limited to wood pellets. They reported 36 co-generation units at pulp and paper mills and 41 independent power providers, however, most of these are not using wood pellets but rather a mixture of woody biomass.

Figure 1- Canadian Production of Woody Biomass.

Source: Natural Resources Canada, Energy Fact Book

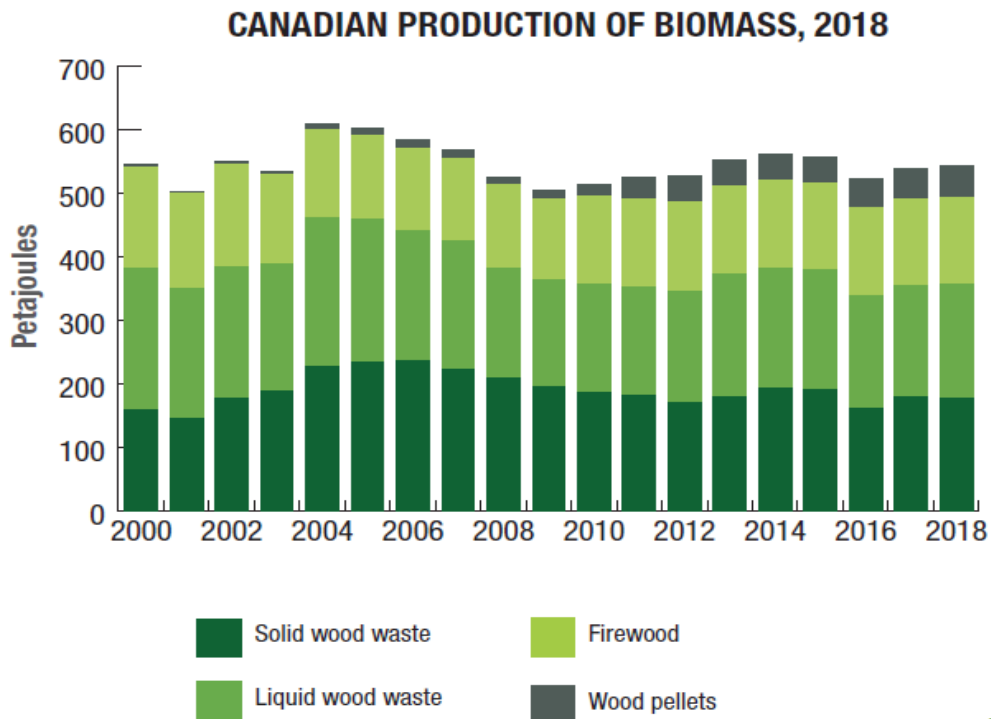
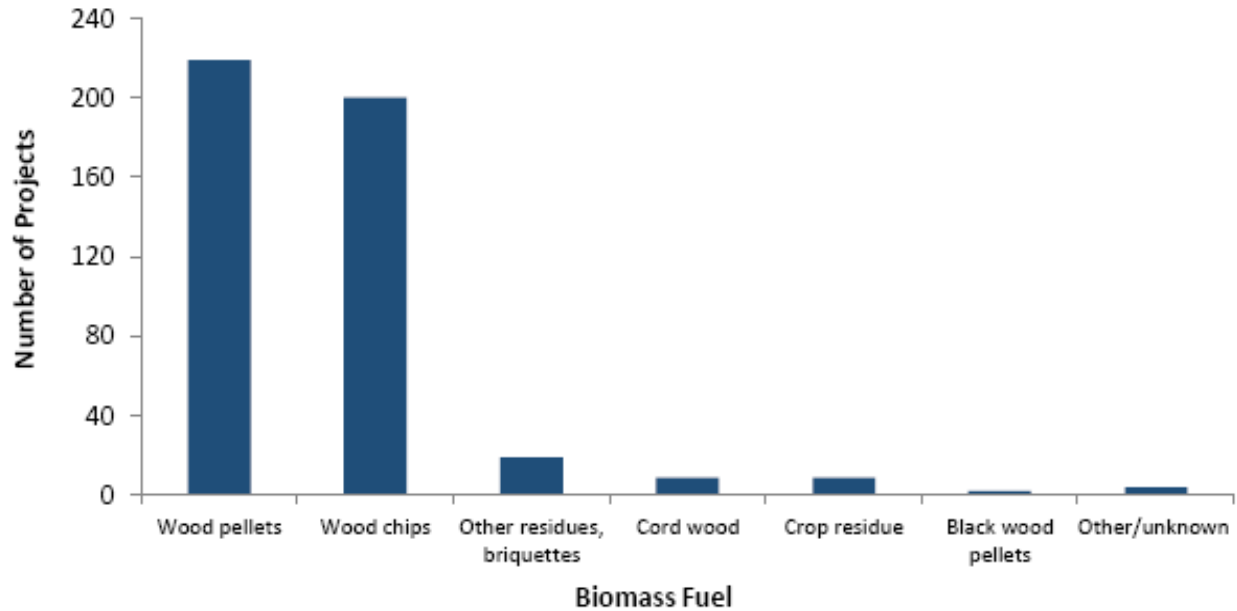


Figure 2- 2020 Canadian Wood Bioheat Projects.

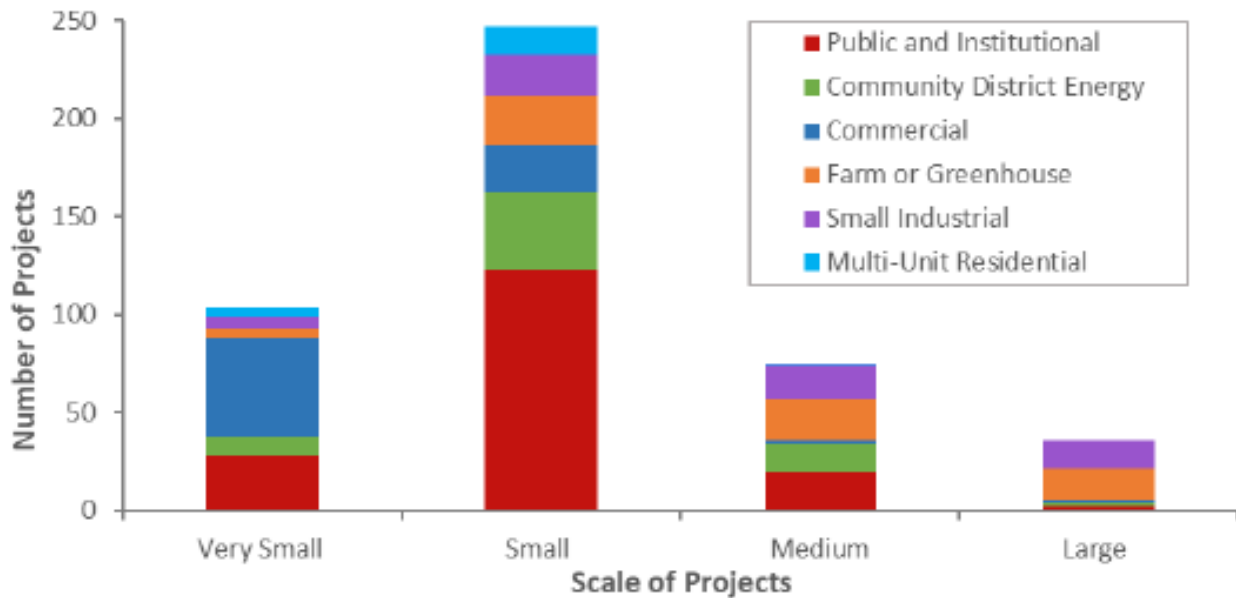
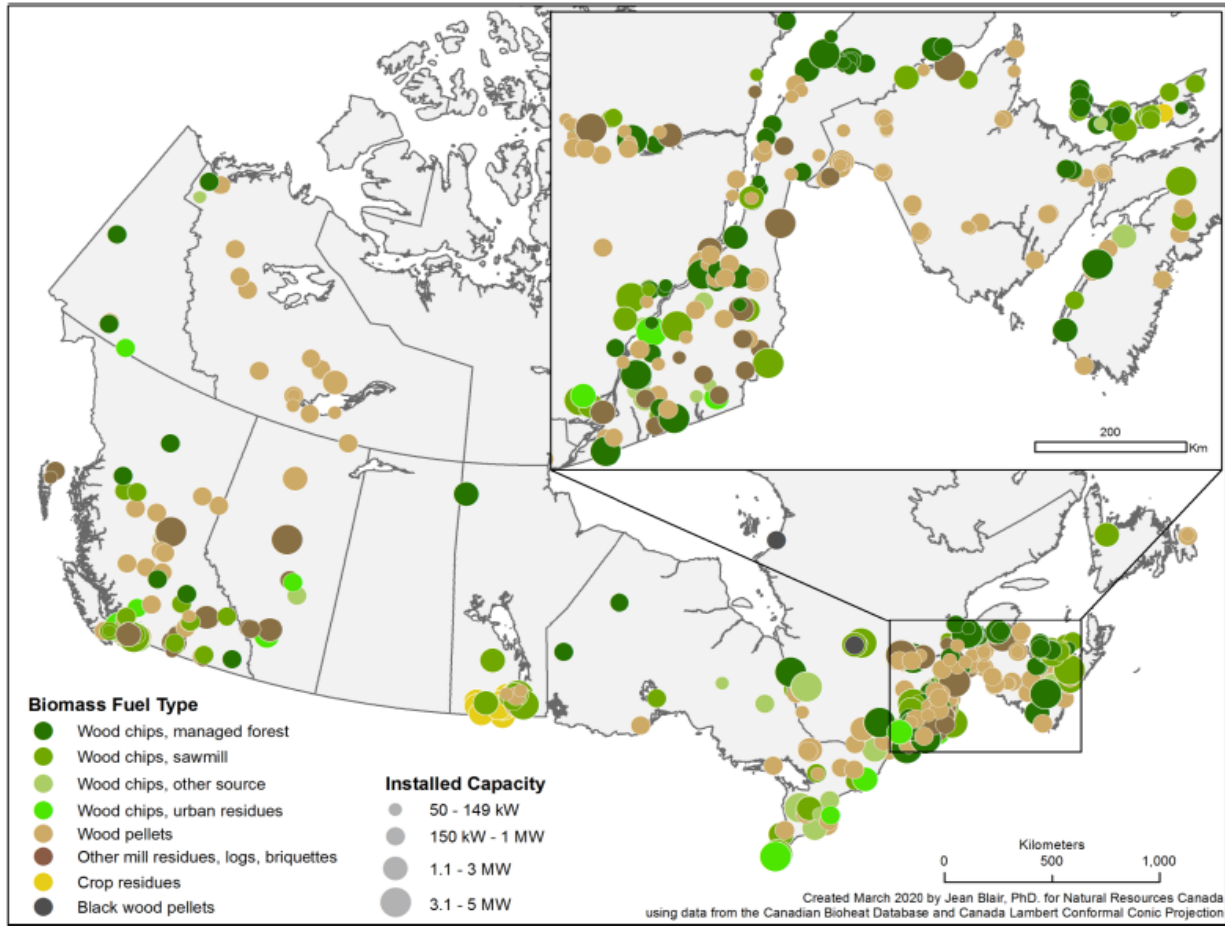


Source: Natural Resources Canada, Bioheat Survey Report 2020

The 2020 bioheat survey contracted by Natural Resources Canada noted that wood pellets are the dominant feedstock of solid fuel bioheat installations in Canada. Wood pellet use is noted as being most prevalent in New Brunswick, Ontario, and the Northwest Territories. Use of wood pellets is more common in Eastern Canada and on the west coast in British Columbia. This is likely due to these geographic locations correlating to proximity to forested regions as well as major population areas meaning that wood pellet feed stock is readily available and there are higher demands for energy concentrated in these regions. Of the 462 bioheat projects recorded in the survey, over 80 percent were classed as small or very small (<1 MW). The latest iteration showed growth of 61 new projections since the last data collection in 2018. The report notes that the new additions are all heat only and that heat and power installations have not been well established in Canada at this time, owing to challenges in reaching agreements with provincial utility operators. The utility infrastructure in Canada is often described as fractured and energy flows tend to travel north-south between Canada and the United States as opposed to east-west/west-east, interprovincially, within Canada.



Figure 3- Bioheat installations by location, fuel type, and installed capacity.

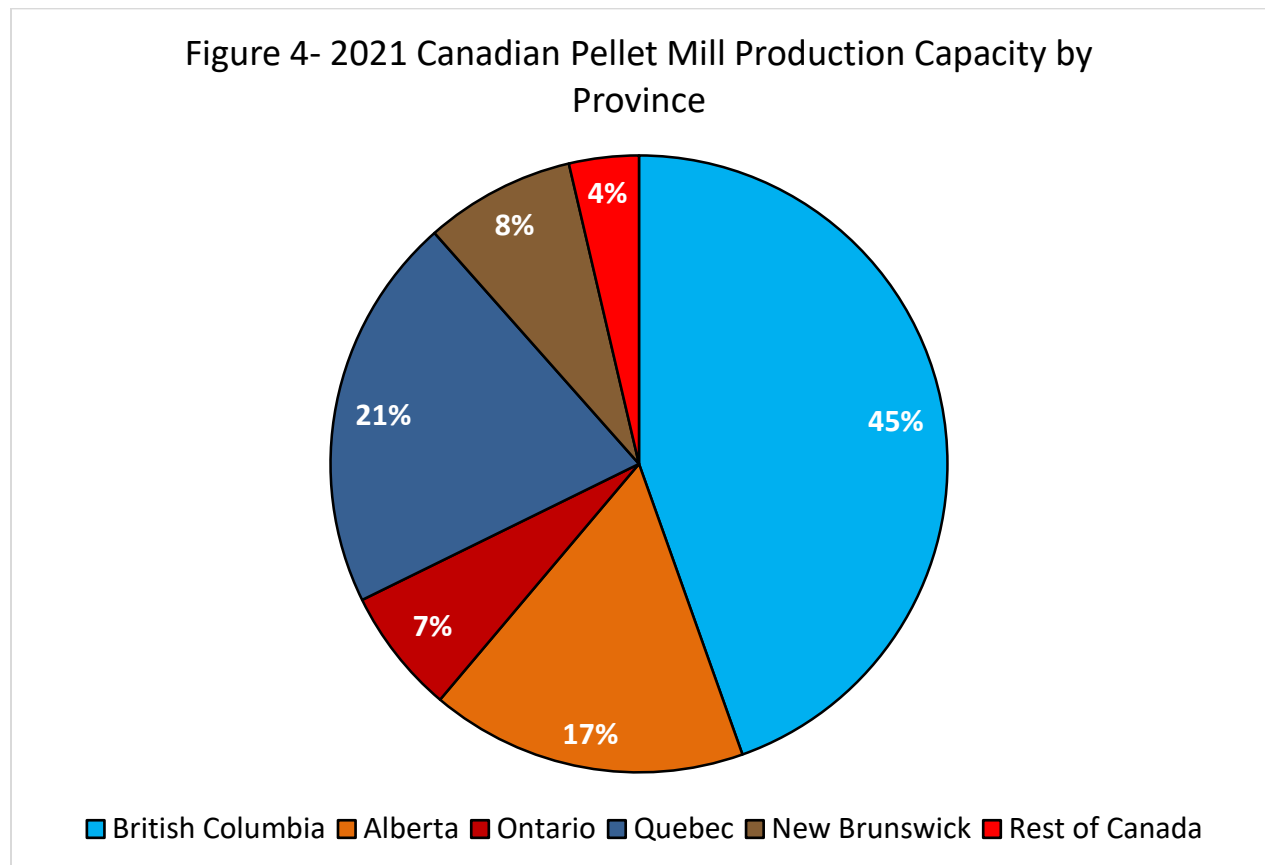


Source: Natural Resources Canada, Bioheat Survey Report 2020

There are opportunities for the use of wood pellets in institutional heating in Canada and rural residential but limitations on available boilers remain. Industry is hopeful that the new [National Standards Strategy](#) launched in July 2022 by the Standards Council of Canada will resolve the issue of import restrictions on European manufactured wood pellet boilers. In the interim, certain provinces have provided recognition of EU certified boilers and a growing number of these boilers are being installed in Canada. Recognition has been granted in Prince Edward Island, Ontario, and Northwest Territories.

47 Canadian pellet mills are in operation for 2022, the same as 2021, but nameplate capacity was lower according to the Canadian Biomass Magazine 2022 data release. The first plant located in the Northwest Territories was expected to begin operations in 2022 but it does not appear that this plant is operational at this time. An additional plant in Quebec is expected to bring up to 100,000 MT of additional production in 2023.

The majority of pellet mills are in British Columbia and Quebec, British Columbia has 45 percent of Canada's production capacity at over double the Quebec capacity. Reductions in the annual allowable cut in British Columbia could negatively impact pellet production in the coming years. However, pellet production could also benefit depending on how harvest related management practices are used to combat mountain pine beetle infestations in the province.



Source: Canadian Biomass Magazine, Pellet Map 2022

Table 1- Canada Wood Pellets Supply and Distribution.

<b>Wood Pellets (1,000 MT)</b>											
<b>Calendar Year</b>	<b>2012</b>	<b>2013</b>	<b>2014</b>	<b>2015</b>	<b>2016</b>	<b>2017</b>	<b>2018</b>	<b>2019</b>	<b>2020</b>	<b>2021</b>	<b>2022 f</b>
<b>Beginning Stocks</b>	47	64	87	129	161	129	393	548	760	758	634
<b>Production</b>	1,521	1,822	1,900	1,900	2,600	2,700	3,100	3,220	3,300	3,500	3,500
<b>Imports</b>	45	22	30	30	20	20	20	26	29	29	20
<b>Exports</b>	1,369	1,640	1,638	1,628	2,373	2,172	2,651	2,634	2,901	3,153	3,300
<b>Consumption</b>	180	181	250	270	279	284	315	400	430	500	530
<b>Ending Stocks</b>	64	87	129	161	129	393	547	760	758	634	324
<b>Production Capacity</b>											
Number of Plants	42	41	41	39	42	42	45	45	46	47	47
Nameplate Capacity	2,900	3,175	3,282	3,681	4,282	4,282	4,657	4,657	4,856	5,054	4,790
Capacity Use (%)	52.4%	57.4%	57.9%	51.6%	60.7%	63.1%	66.6%	69.1%	68.0%	69.3%	73.1%

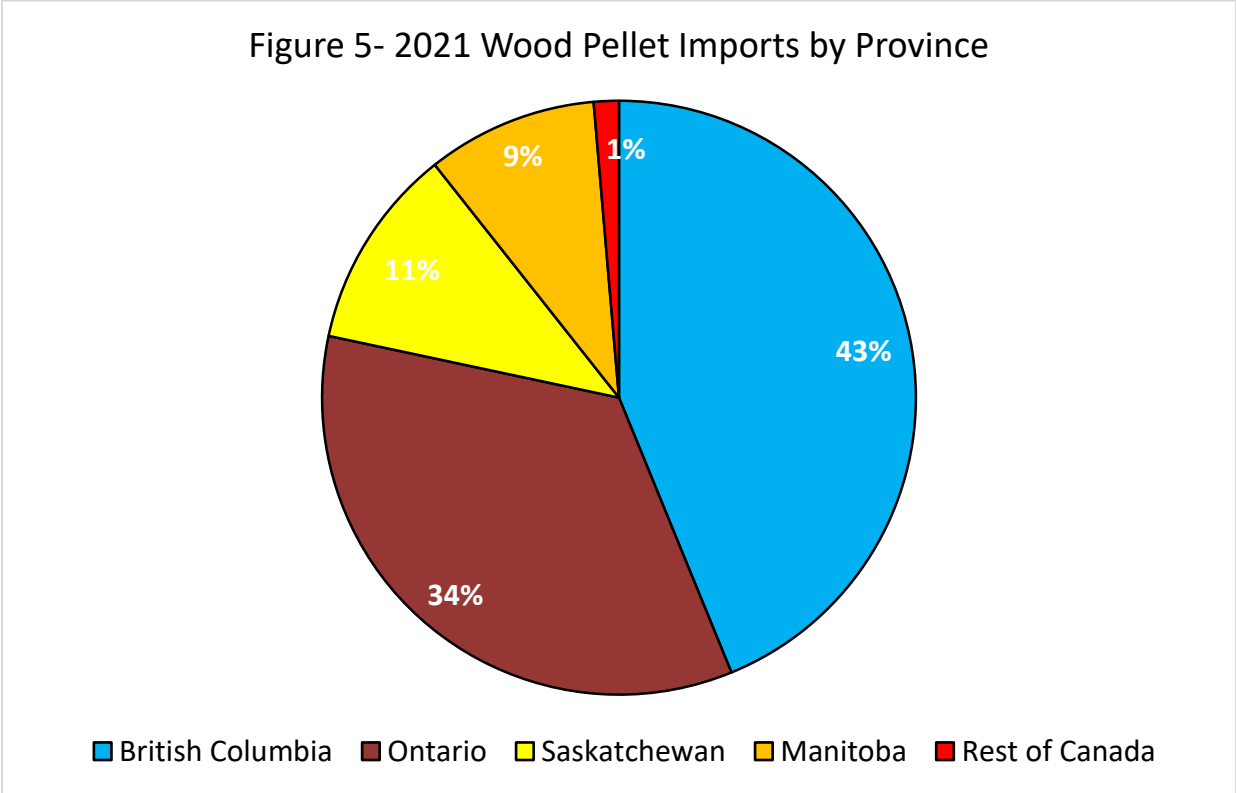
*Source: Production and consumption data is derived from FAS/Canada and industry estimates. Trade data is sourced from Trade Data Monitor, LLC.*

A detailed map of Canadian wood pellet mills is maintained by [Canadian Biomass Magazine](#).

FAS/Canada is forecasting 2022 wood pellet production to remain stable from last year as harvest capacity and labor constraints continue to limit production expansion. Export opportunities to Asian and European markets remain, but scalability challenges are expected to hamstring production expansion.

Gains in domestic consumption are forecast to continue in 2022 although Canadian domestic consumption remains minimal compared to exports. Increasing awareness and boiler availability should support more residential and smaller scale industrial/commercial use of biomass. Continued domestic growth remains dependent on policy developments around biomass and solid fuel biomass. Federal support for wood pellets in Canada’s sustainability and GHG reductions policies is largely lacking.

Figure 5- 2021 Wood Pellet Imports by Province



Source: Trade Data Monitor, LLC

FAS/Canada forecasts a 30 percent reduction in wood pellet imports for 2022. Industry indicates that wood pellet imports are typically consumer bagged for the residential heating market. Ample supplies carried over from 2021 and slow growth in the residential heating market will limit import potential in 2022. The United States will continue to be the dominant supplier due to geographic proximity. However, growth in U.S. pellet exports to the European market is likely as the Russia-Ukraine conflict contributes to increased demand amidst lower European wood pellet production.

**Table 2- Canada: Imports of wood pellets (MT)**

	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
<b>World</b>	<b>44,545</b>	<b>22,615</b>	<b>30,108</b>	<b>29,938</b>	<b>20,257</b>	<b>19,612</b>	<b>19,938</b>	<b>25,462</b>	<b>28,536</b>	<b>29,267</b>
United States	44,518	21,510	22,718	20,934	11,383	16,577	17,623	25,233	28,185	28,560
<i>Market share:</i>	<i>100%</i>	<i>95%</i>	<i>75%</i>	<i>70%</i>	<i>56%</i>	<i>85%</i>	<i>88%</i>	<i>99%</i>	<i>99%</i>	<i>98%</i>
China	3	15	6	17	11	26	231	158	201	244
Germany	0	89	12	23	28	46	75	64	133	417
Norway	0	917	7,362	8,946	8,831	2,950	2,003	0	0	0
All other countries	24	84	10	18	4	13	6	7	17	46

*Source: Trade Data Monitor, LLC*

#### **IV. Competitor**

The Canadian wood pellet industry is export-oriented with production capacity currently exceeding domestic demand. Recent export growth is led by the United Kingdom and Japan, as these countries seek to increase their use of renewable energy in heat and power plants.

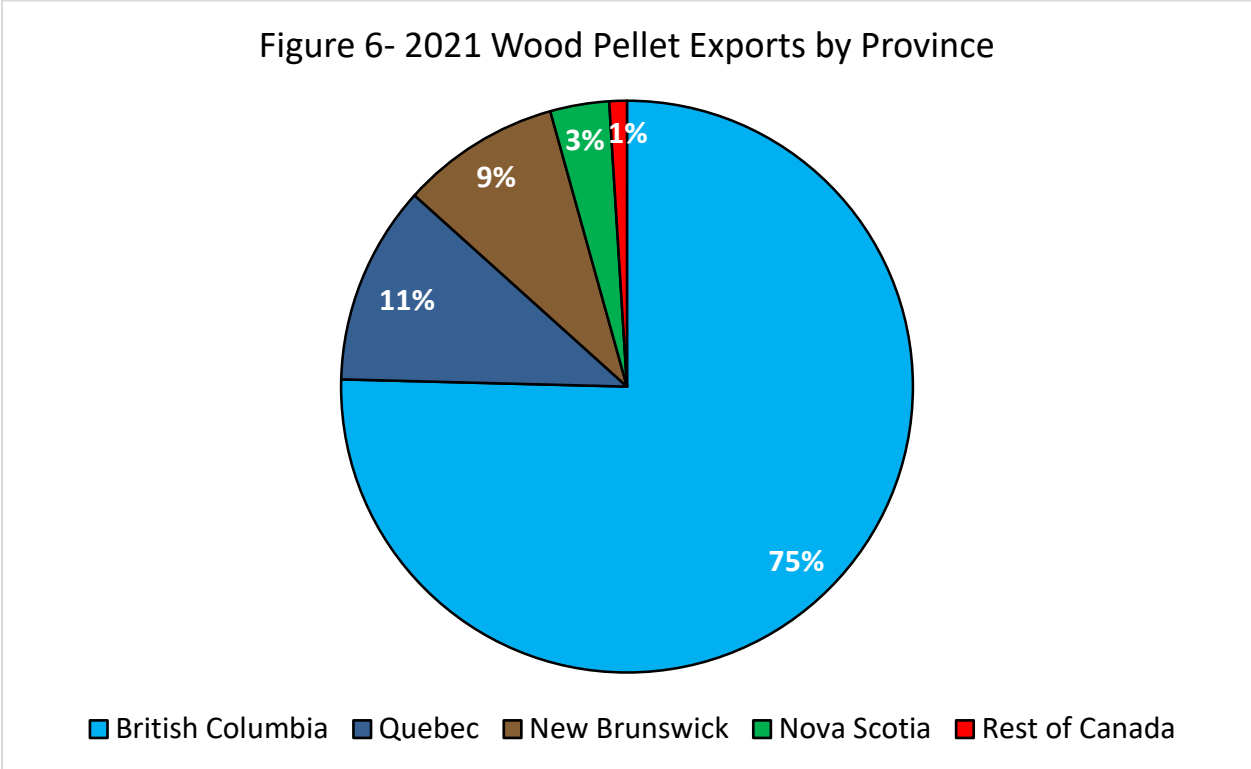
**Table 3- Canada: Exports of wood pellets (MT)**

	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
<b>World</b>	1,369,181	1,640,347	1,637,589	1,627,784	2,373,110	2,171,528	2,651,441	2,634,241	2,900,687	3,153,114
United States	86,665	152,271	218,903	205,743	169,930	210,069	217,166	210,536	204,591	195,002
United Kingdom	794,379	1,026,527	982,809	1,205,928	1,664,145	1,489,578	1,577,562	1,656,401	1,456,317	1,259,390
Japan	105,640	76,018	61,807	80,203	272,376	245,179	621,928	560,817	611,245	1,090,636
Netherlands	253,481	0	0	0	0	0	57,250	15,650	398,859	179,998
Denmark	11,464	13,635	17,197	0	0	0	38,859	59,213	90,930	76,500
Belgium	5,800	132	306	0	144,000	126,758	40,604	72,480	57,096	34,250
South Korea	2,084	113,077	150,004	49,029	48,915	55,483	40,657	11,804	48,553	253,887
All other countries	109,668	258,687	206,563	86,881	73,744	44,461	57,415	47,340	33,096	63,451
<b>Market Share:</b>										
United States	6%	9%	13%	13%	7%	10%	8%	8%	7%	7%
United Kingdom	58%	63%	60%	74%	70%	69%	59%	63%	50%	43%
Japan	8%	5%	4%	5%	11%	11%	23%	21%	21%	38%
Netherlands	19%	0%	0%	0%	0%	0%	2%	1%	14%	6%
Denmark	1%	1%	1%	0%	0%	0%	1%	2%	3%	3%
Belgium	0%	0%	0%	0%	6%	6%	2%	3%	2%	1%
South Korea	0%	7%	9%	3%	2%	3%	2%	0%	2%	9%
All other countries	8%	16%	13%	5%	3%	2%	2%	2%	1%	2%

Source: Trade Data Monitor, LLC

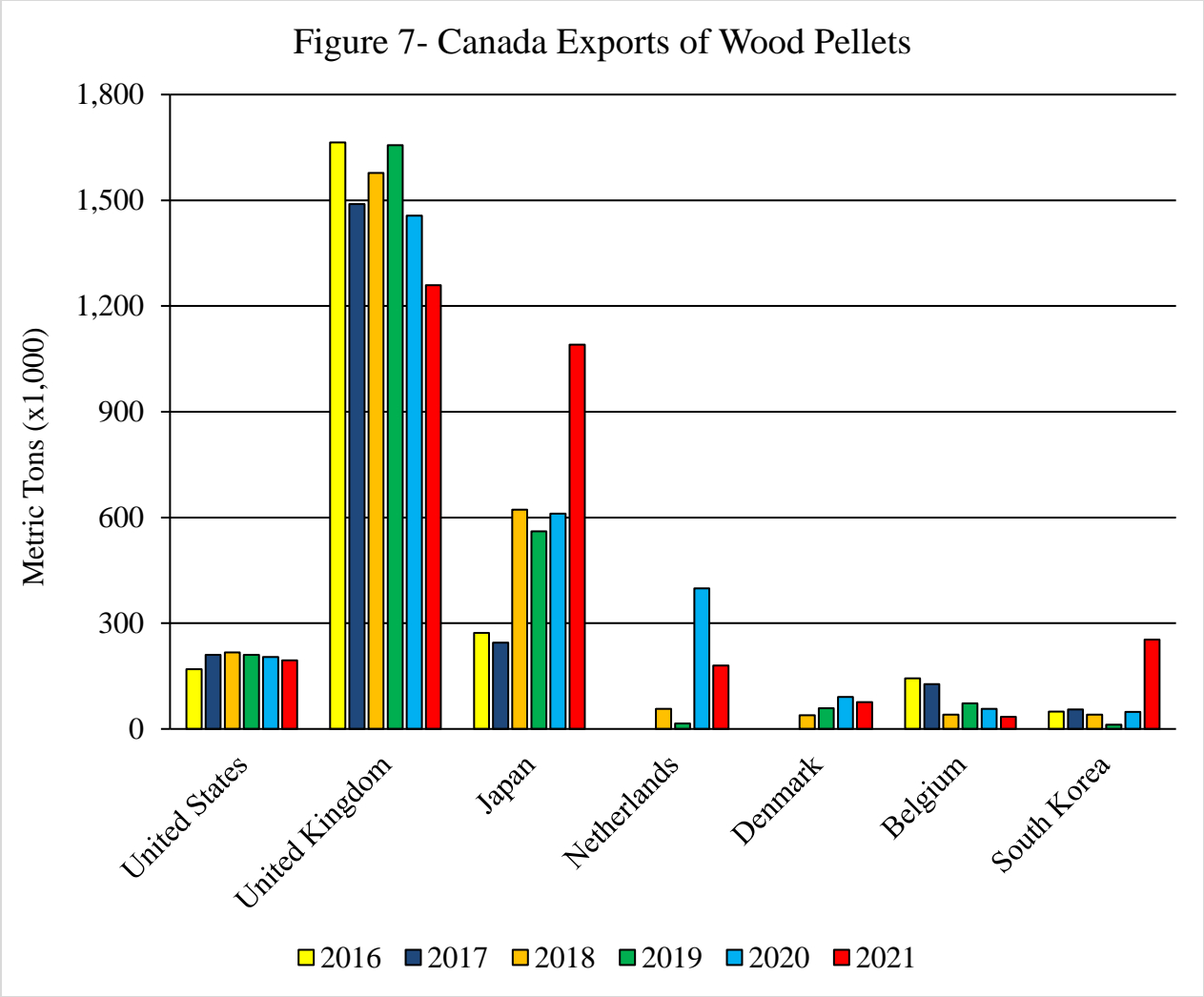
75 percent of Canada’s wood pellet exports are from British Columbia, the province with the highest production. Wood pellets move out of both the Port of Vancouver and Port of Prince Rupert as these ports have rail links and facilities to bulk load vessels. Canada has been expanding exports to Japan in recent years. Pinnacle, now owned by Drax, has charter vessels moving wood pellets between British Columbia and Japan, establishing a strong supply link between British Columbia and Japan. Drax is expected to maintain export activity to Japan given geography and established relations. The volume of pellets exported from British Columbia to the United Kingdom has been in decline in recent years with Asian markets providing more favorable export logistics and growth opportunities.

Figure 6- 2021 Wood Pellet Exports by Province



Source: Trade Data Monitor, LLC

FAS/Canada forecasts that 2022 exports will grow five percent driven by strong demand from Europe and Asia. Canada will continue to be the main competitor to U.S. exports in these markets. While the industry has growth potential, growth within Canada will be constrained by federal and provincial/territorial management of Crown lands where most forestry activity is occurring. A lack of focus on wood pellets in policies on renewable fuels and sustainability and reductions in GHG emissions will also continue to hamper industry growth.



Source: Trade Data Monitor, LLC

**V. Notes on Statistical Data**

None

**Attachments:**



No Attachments.