

How to choose between **BIOMASS** fuel types ...

cordwood, wood chips, and wood pellets?

Biomass Fuel	Pro's ☺	Con's ☹
Cordwood	SUPPORTS LOCAL ECONOMY Community members can be employed to collect cordwood, and to keep the boiler running.	NEEDS TO BE FED FREQUENTLY The fire in the boiler usually has to be fed often (every few hours at the coldest times). It has to be fed by hand (not automatic feeding by machine).
	CHEAPEST OPTION Cordwood boiler systems and fuels are usually the cheapest option, especially if the wood is local. Annual Operations & Maintenance costs are usually the lowest of the 3 options.	WAIT TIME Seasoning required – need to wait one to two years to dry out the cordwood. Usually the moisture content should be 20% or less.
	NO SPECIAL EQUIPMENT REQUIRED TO PREPARE THE FUEL Just need trucks, chainsaws, ATVs	NEED TO BUILD ADDITIONAL THERMAL STORAGE The boiler system usually involves building a container to store water that will be heated by the fire. The water carries the heat to the building(s). It lowers the risk of the system over-heating (since the temperature of the fire can't be perfectly controlled).
	CHEAP AND EASY STORAGE Cordwood can be stored outside, does not necessarily need to be covered	BURNING UNSEASONED WOOD DECREASES AIR QUALITY Burning unseasoned cordwood results in smoke and particulate matter getting into the air, which is bad for people's health and the environment.
	PEOPLE ARE FAMILIAR Many people already use cordwood in their home wood stoves.	MAY PRODUCE LOTS OF ASH IF LOTS OF BARK BURNED If the cordwood includes lots of bark, then lots of ash may be produced. This means more maintenance (emptying) and potential air quality issues.
	LOCALLY AVAILABLE, CAN BE ENVIRONMENTALLY FRIENDLY Can use wood cleared for fire breaks; collect downed trees or diseased trees	RISK OF LOSING HABITAT, INCREASING CLIMATE CHANGE When living trees are burned unnecessarily and over a short time frame, wildlife habitat can be harmed and it contributes to climate change.
	HELPS REDUCE FIRE RISKS Wood can be harvested from fire breaks which help protect communities and cabins from fire.	
Wood Chips	SUPPORTS LOCAL ECONOMY Community members can be employed to collect wood, chip wood, and build storage shed.	COST TO BUY OR RENT CHIPPER Requires a wood chipper that can handle the diameter of the wood available.
	LESS WORK TO KEEP RUNNING AT THE RIGHT TEMPERATURE The system can be automated – chips get fed into the boiler automatically, based on heat demand	ADDITIONAL COST TO BUILD STORAGE SHED Chips need to be stored inside.
	MORE FLEXIBILITY TO GO BACK AND FORTH BETWEEN CHIPS AND PELLETS There are several boiler models available that can burn either wood chips or pellets.	OVERALL COST The price of wood chip boilers is usually more than cordwood boilers, and Operations & Maintenance costs are usually higher too.
	LOCALLY AVAILABLE, CAN BE ENVIRONMENTALLY FRIENDLY Can use wood cleared for fire breaks; collect downed trees or diseased trees	ENVIRONMENTAL IMPACTS Most chippers require diesel fuel to operate, which is expensive, could spill and contributes to climate change. When living trees are burned unnecessarily, wildlife habitat can be harmed and climate change worsens.
		RISK OF CHIPS FREEZING IF THEY ARE TOO WET If the chips have a high moisture content (over 40%), they freeze into a solid block and clog up some systems.

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Wood Pellets	<p>LEAST AMOUNT OF WORK FOR COMMUNITY The system is usually automated. If the container holding the pellets is large enough and tied directly to the boiler, it could keep running for months without needing anyone to refill it.</p>	<p>MOST EXPENSIVE OPTION</p> <ul style="list-style-type: none"> • Pellet boilers are usually more expensive than cordwood boilers, due to the automation and the need for large storage containers and facilities. • Pellets are more expensive to buy than collecting cordwood or making chips. • Annual Operation & Maintenance require trained maintenance staff and costs are usually the highest of the three biomass fuel options.
	<p>CLEANEST BURNING Pellets have low ash content and low particulates, so they keep air the cleanest.</p>	<p>LITTLE SUPPORT FOR LOCAL ECONOMY Local communities do not receive most of the economic benefits from wood pellet systems.</p>
	<p>SOME ASPECTS ARE ENVIRONMENTALLY FRIENDLY Pellets transported up from Alberta or BC are generally made from sawmill waste – if not made into pellet fuel, it would have gone in the garbage, so it is a form of recycling.</p>	<p>ENVIRONMENTAL IMPACTS IF MADE FROM LIVE TREES, LONG TRANSPORT DISTANCES</p> <ul style="list-style-type: none"> • Pellet facilities that use large amounts of living trees risk harming wildlife habitat and worsening climate change. • Lots of energy goes into manufacturing the pellets (e.g. drying, compressing). • Pellet manufacturing can produce emissions that worsen local air quality.
		<p>NEED TO BUILD GOOD STORAGE TO KEEP DRY Requires indoor storage or very good coverage so pellets remain dry. Pellets cannot get wet or else they crumble apart and cannot be used.</p>

Need help deciding which biomass fuel could work best for your community?

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