

Based on figures published by the U.S. Forest Service, 50% of Vermont's forest inventory is made up of wood, branches, and bark that have no potential for manufacturing quality products such as woodenware or furniture. This unusable wood largely consists of tops and cull portions left behind after trees have been conventionally harvested as sawlogs or pulpwood. The amount of wood available for whole tree chip harvesting has been conservatively estimated at 1 million green t/yr in Northern Vermont alone. This is twice the forecasted need to operate the McNeil Station annually at an estimated 70% load factor.

Wood for the McNeil Station is harvested under strict guidelines developed in conjunction with the State of Vermont. Burlington Electric is required to have four professional foresters on staff to supervise the procurement. Every harvesting site and harvesting plan is reviewed by a forester and approved by the state before the trees are cut. The foresters ensure that the wood is cut in such a way as to minimize any adverse effects on wildlife and the land, while optimizing regrowth potential.

Clearcuttings are generally limited to areas where the trees are of very poor quality. It may also be used in some cases to promote wildlife habitat. In these cases, the size of the area is limited to a maximum of 25 acres. Clearing is used in cases where the land is converted to other uses such as development, agriculture, or tree planting.

The Vermont Public Service Board required that 75% of all wood fuel be delivered by rail to McNeil Station. Burlington is the largest city in Vermont and there were concerns about traffic congestion from the trucks bringing wood to the station. A typical wood truck carries 25 t of wood, so three truck loads of wood are required for every hour the plant is operating at full load on wood fuel.

A remote wood yard is located in Swanton, Vermont, 35 miles from Burlington and 8 miles from the Canadian border. Seventy-five percent of the station wood is delivered to Swanton by truck. This wood is stored temporarily and loaded into 21 bottom dump gondola railroad cars. Each car can carry 75 tons of wood chips, or 7000 ft³. At the McNeil Station, the railcars are unloaded three at a time through an unloading trestle.

Wood chip costs depend on such factors as the distance from the point of delivery, the type of material (such as bark, sawmill residue, or whole tree chips), and the mode of transportation. Chips delivered directly to the plant by truck are less expensive than those delivered to the Swanton site and shipped by railcar to the McNeil Station. The range of prices is \$10-\$23/t delivered (~\$20-46/dt, or ~\$1.20-\$2.70/MBtu). Shipping wood in by rail imposes an estimated 17% premium on the delivered fuel cost.

After an initial experience with over-storage onsite, which led to serious odor problems and spontaneous combustion in the wood piles, the plant developed a very tight management plan for on-site wood chip storage and handling. Piles are limited in size and are monitored to ensure that they do not reach the odor-producing stage. Fuel is consumed on a first-in, first-out basis to control the age of the material.