

in use at Clarkson College

By Nancy C. Kohart

Anyone who pays tuition to attend a North Country College or owns a North Country home feels the "pinch" in their pocket as the mercury drops. Energy conservation is part of everyone's winter vocabulary in this area.

An abundant source of alternative energy covers the northern part of New York — wood. And more and more people are turning to wood stoves to heat their homes.

North Country institutions are also very sensitive to rising fuel costs, since they use massive amounts of energy. Yet, none have exploited wood as a fuel until now. After employing the standard methods of energy conservation, delamping, individual radiator controls and a dual heating system that burns both natural gas and numbers 2, 4 and 6 oil, Clarkson College of Technology is turning to wood with an eye on the future.

Starting this fall, Clarkson will heat the downtown campus, nine buildings, primarily with wood waste. Woodwaste is simply the leftover sawdust and chips from area lumberyards. This "waste" amounts to substantial savings for Clarkson. The downtown campus uses about 300,000 gallons of oil per year which presently costs about \$300,000. It would take 4,200 tons of wood to do the same job or contracted at \$14 a ton, about \$58,000 a year. Therefore, if woodwaste could be measured as a liquid, comparable to fuel oil, it would sell at 20 to 21 cents a gallon.

This is such a savings that the \$600,000 construction project, almost half-funded by the New York State Department of Energy, would pay for itself in less than three years.

The project engineer for the Clarkson woodchip system is Gerry Gonyea. He feels the long-term savings through the use of wood are substantial. Gonyea projects the 3 year difference between using oil and wood will amount to approximately \$700,000, and between gas and wood \$4.5 million.

The new system will be extremely flexible burning three grades of oil, natural gas and almost any solid fuel, including coal. Solid fuel will be kept in a large storage bin 20 feet around and 36 feet high. As fuel is needed, it passes through a material classifier which only lets woodchips 1.5 inches get through. The fuel passes over a magnetic pulley removing any foreign material of metal, and then puts it in a bin that has a "full-empty" indicator. From there wood is injected into the furnace as needed.

There are some drawbacks to using wood as fuel. It is more polluting than natural gas, but since it is virtually all carbon it may be as little as 1-10 as polluting as coal. A lot of space is needed to house the boiler and equipment as well as store the bulk fuel. Since the machinery is more elaborate there is a higher maintenance cost, possibly an additional, \$5,000 a year for Clarkson Also, Gonyea feels that in the near future woodwaste from lumberyards will become increasingly scarce. Clarkson, however, has a five-year contract with a lumberyard.

Even with these disadvantages, A Federal Energy Department estimates 9-15 percent of the state's energy will be provided by bio-mass by the turn of the century.

Gonyea is confident about the success of the woodchip plant and would like to see the college purchase marginal and



unused farm land to harvest fast-growing hybrid poplar trees. Four hundred acres would supply Clarkson's present demands for woodwaste.

"Handling solid fuel is labor intensive," Gonyea said, and harvesting would generate employment for the community. These 400 acres would most likely be purchased from the county so it would not affect community taxes. Clarkson would be putting "marginal land back into production."

Gonyea added another way to get a mass supply of wood and still generate community employment. Franklin, Lewis, Jefferson and St. Lawrence Counties could produce 5,000 tons of wood each day, or 2,000,000 tons a year using the existing forests. This production would not deplete the stock

of wooded areas. It would, however, employ between 400 and 600 people and generate \$75,000,000 to the 4 counties in wages capital.

Clarkson will serve as a model for other New York State institutions interested in this type of energy program. Yet the woodchip success has not caused a lull in Clarkson's search for other effective and cost-efficient sources of energy.

Gonyea, with Clarkson since 1965, has worked with Clarkson's conservation programs since their beginning. He believes the ultimate goal is to be "fuel independent." He has enough studies and proposals going that if they were all approved by the university, Clarkson "could be (fuel) independent by 1984."

"CHOSEN LIFE"

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with the term self-sufficient. I learn that windmill is also incorrect. The Scarlets have a wind generator and a wind pump.

"It's the beginning," John says. "I didn't like the notion of being dependent on a big utility — not having a say whether I used oil, coal or nuclear. I wanted to have some control."

He goes on to explain that he wants to take responsibility for the way he uses things, so he's not supporting nuclear power, or unwise uses of oil and coal that cause acid rain. He may not be saving that much money (and whenever he buys things he must consider that manufactured goods have used some form of electrical power) but even the psychological independence is "one of the reasons we moved here in the first place."

John built the wind generator and pump himself, collecting pieces from old blown over windmills over time. This is also the way Frank Peters built his standing plow. The wind generator is an aeromotor with a 63 foot tower up on a hill. The whole time we were there it was spinning.

Oxen, windmills, making choices, taking responsibility and eating well: first impressions of Frank and Isis, Liz, Joh, Rob and Mark's lives.

