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Efficient Wood-Pellet Furnaces Gaining Popularity

ATHENS, N.Y.—With the touch of a finger on an iPod-style screen, Eric Besenfelder can monitor and troubleshoot the shiny, wood-pellet furnace that heats Athens Elementary School in the Hudson Valley.

Like the smoky, outdoor wood boilers that have proliferated in rural areas over the past 20 years, the wood furnace at Athens is housed in a shed behind the building. But that's where the similarity ends.

"This burns very cleanly and produces very little ash," said Besenfelder, director of facilities for the Coxsackie-Athens School District, beside the Hudson River 30 miles south of Albany. "It takes no more maintenance than an oil boiler. Everything's automated."

Athens is among a growing number of schools, government buildings, nature centers and homes that have switched from fossil fuels to renewable wood heat in Northern states to save money and support the local forestry economy.

At least 10 states offer incentives including grants, low-interest loans, tax credits and training programs to promote biomass heating, according to the Alliance for Green Heat. The New York Energy Research and Development Authority is offering homeowners 25 percent of the installed cost of an advanced wood-pellet boiler up to \$20,000, with a \$4,000 bonus if they're replacing a smoky old-fashioned wood boiler. Large commercial installations can get 25 percent of the cost, up to \$150,000.

The Northern Forest Center, a nonprofit based in Concord, New Hampshire, is promoting the biomass heat industry by subsidizing the installation of high-efficiency pellet boilers in "model neighborhoods." The idea is to create a critical mass of users to increase familiarity with the systems and demonstrate their value.

The first such neighborhood was launched in Berlin, New Hampshire, in 2011, and includes 40 homes, an arts center and two housing complexes. Homeowners have saved close to \$160,000 on heating fuel by switching to pellets from oil heat, according to Northern Forest Center director Maura Adams. The idea is catching on beyond the model neighborhood, with about 300 pellet boiler installations statewide, she said.

Model neighborhoods have also been launched in Maine and Vermont, and most recently, in the Adirondacks, where the project subsidized a pellet boiler in the Saranac Town Hall last November. Jerry Delaney, a Saranac councilman, said the town expects to save \$1,000 a year by heating with pellets instead of oil.

According to the Northern Forest Center, the Northeast consumes more than 80 percent of the U.S. supply of home heating oil and spends more than \$6 billion annually on fossil fuels. Rural areas usually have no access to natural gas, the cheapest and cleanest-burning fossil fuel, and must rely on oil and propane delivered by truck.

For the advanced pellet boilers, fuel is delivered by a converted oil or grain truck and blown into a storage hopper. Automated augurs feed the pellets into the burner and remove fine ash, which can be spread as a fertilizer on farm fields. Heat circulates through the building via hot-water radiators.

"This one project will do three significant things," said Maura Adams, director of the Northern Forest Center. "It will help businesses and homeowners lower their heating costs; it will increase demand for wood pellets, which supports jobs in our forest-based businesses; and it will keep money circulating in the local economy rather than being exported."

The biomass fuel industry is filling a void left by declines in the paper and board markets, Curran said, allowing the company to expand from 80 to 116 full-time employees. "At least half of the workforce is related to the biomass industry," he said.

Athens gets its pellets from a mill in Massachusetts for \$220 a ton, including delivery. The school burned 46 tons of pellets in the winter of 2013-14, which equals 4,600 gallons of fuel oil then priced at \$3.30 a gallon, netting a savings of \$5,043, Besenfelder said.

The school's boiler was manufactured in Schenectady by Advanced Climate Technologies, a spinoff of a traditional fossil fuel commercial boiler maker. Larry Farrelly, the company's president, said they've built and sold more than 30 commercial size pellet boilers from Maine to Alaska.

"We're optimistic it will be a viable market segment moving forward," Farrelly said. "It's a matter of communicating the efficiency and the fully automated nature."

The pellets burned in Saranac come from Curran Renewable Energy's pellet mill in Massena along the St. Lawrence River. Co-owner Pat Curran said sister company Seaway Timber Harvesting cuts trees, predominantly hardwood, and chips them to supply the pellet plant. Bark and branches are shredded and sold to fuel a power plant at Fort Drum.

