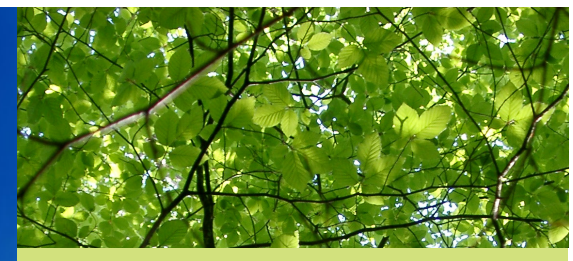


A Look Back at Fuels For Schools and Beyond:

How the USDA Forest Service Began Transforming Energy Use One Community at a Time

The U.S. Endowment for Forestry and Communities and the USDA Forest Service have a shared interest in advancing sustainable forestry in the U.S. This brief is intended to inform public dialogue on sustainable markets and forests.

According to the ***Energy Information Administration,*** in 2011 the U.S. consumed 99.6 quadrillion Btus of energy. Renewables (excluding hydroelectric) contributed just over 8 percent. The role of woody biomass is growing in this equation, in part due to the ***Fuels for Schools*** program initiated by the USDA Forest Service (USFS) in 2001.

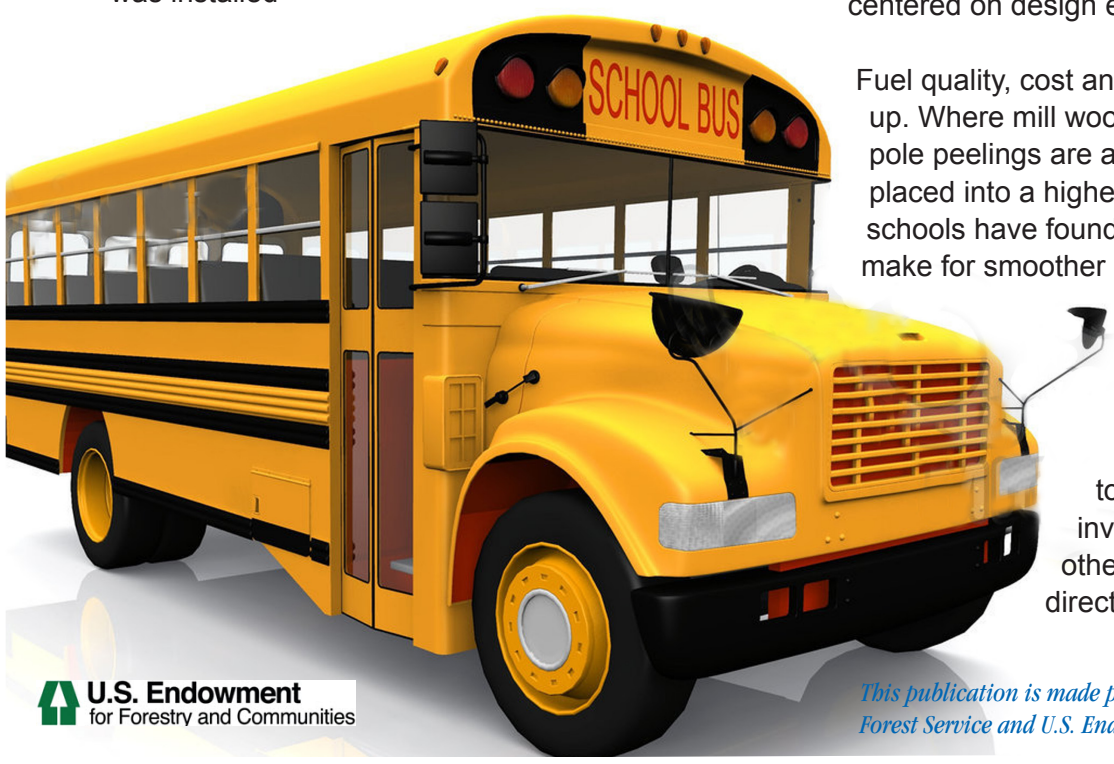
Now twelve years, approximately 25 million dollars and 65+ projects later, Dave Atkins, USFS Woody Biomass Utilization Program Manager, revels in the progress.

Born as a program to convert school boilers to woody biomass in the form of chips or pellets for six-northern tier states, Fuels for Schools grew to encompass ten states and a full range of government buildings until it ended in 2009. Through a combination of technical and financial assistance, the program significantly advanced the adoption of woody biomass as a reliable and safe alternative to traditional sources, especially fuel oil and propane.

The USFS has influenced the use of woody biomass through a range of delivery mechanisms beyond Fuels for Schools (see side bar). Between 2000 and 2011, 135 projects were undertaken for an investment of approximately $73 million or roughly $540,000 per project.

ORIGIN OF FUELS FOR SCHOOLS

Fuels for Schools is another evolution story. As reported in 2007 by ***Biomass Magazine***, the idea germinated in Vermont after former director of the ***Biomass Energy Resource Center*** (BERC), Tim Maker, championed a program with the Vermont Department of Education giving school administrators up to 30 percent toward the cost of converting to woody biomass. The first successful project was installed in 1986. Today, almost 20 percent or over 50 public schools in Vermont are heated with wood.



In the summer of 2000, when wildfires literally ravaged the West leading to the National Fire Plan – a program to reduce hazardous fuels on federal lands, rehabilitate burned areas and assist affected communities—a community group in Darby, Montana applied for funds to convert a school to woody biomass having studied Vermont's success.

Out of the school experience has come the heating of community centers, prisons, hospitals, ski resorts and more.

LEARNING WHAT WORKS

According to Dave Atkins and Angela Farr, both Fuels for Schools coordinators in the past, all but one of the projects initiated under the original program are still functioning and the learning in every area from fuel quality to public relations to system engineering has created a quantum leap for wood-to-energy nationally.

Knowledgeable integration of technology components is critical. As case-in-point, the Northern Nevada Correctional Center in Carson City, NV installed a combined-heat-and-power system in 2007.

The project shutdown in 2009. Issues included a lack of experience with wood-to-energy systems leading to poor design, the cost of fuel transportation and access to the right fuel supply.

The project was sound but it shutdown in 2009. The economics of fuel transportation and access to the right fuel supply were issues. However, the deal breaker in Carson City centered on design errors.

Fuel quality, cost and availability must line-up. Where mill wood waste and post and pole peelings are available, and not already placed into a higher value market, many schools have found that these materials make for smoother operations and cost much less than directly sourcing wood from the forest.

While the vision for wood-to-energy conversions involved taking slash and other low-value or waste wood directly from the forest to the

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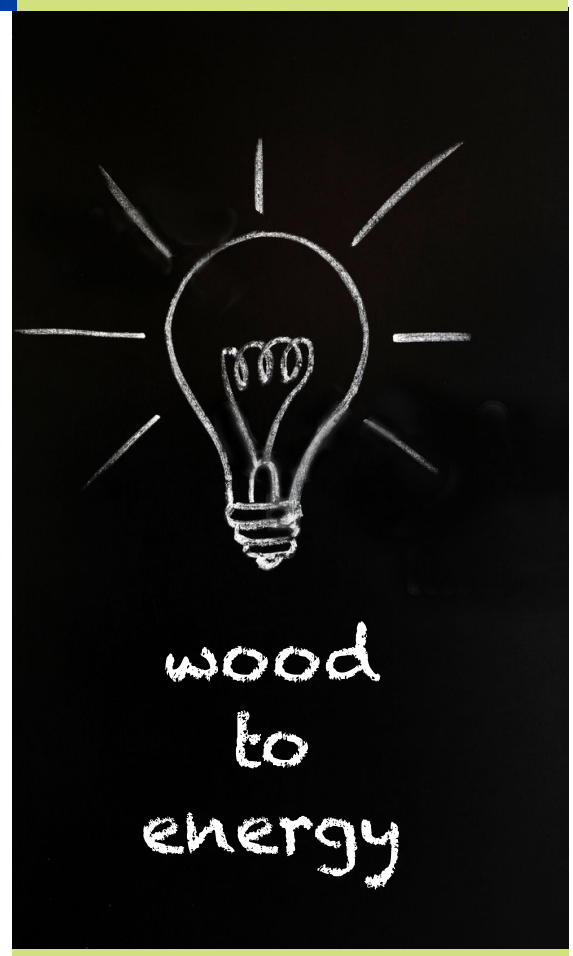

WOOD-TO-ENERGY DATA AND PROJECTS

- **Fuels for Schools and Beyond**
- **Montana Department of Natural Resources Woody Biomass Assistant**
- **BERC database search tool**
- **Wood Education and Resource Center**
- **Forest Products Lab Woody Biomass Utilization Grants**
- **Woody Biomass Utilization Database part of the National Database of State and Local Wildfire Hazard Mitigation Programs**
- **DSIRE: comprehensive source of information on state, local, utility and federal incentives and policies that promote renewable energy and energy efficiency.**
- **American Recovery and Reinvestment Act of 2009.**

U.S. Endowment for Forestry and Communities

This publication is made possible through funds from the USDA Forest Service and U.S. Endowment for Forestry and Communities.

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boiler, Angela Farr says, "That's not a problem because the wood is still originally sourced from local forest thinnings and sound management."

Local landowners donate whole small logs to the Darby, MT school. A chipper prepares the logs for use in the school boiler, this past year they saved almost $200,000 over oil, which is 4-5 teachers in this rural school.

Time Magazine reported that the Deer Lodge, MT grade school heats with sawmill waste, dropping the monthly heating bill from $6,600 to $1,100. Vermont's Middlebury College installed a central heating and cooling biomass system, saving $2 million a year on fuel-oil bills, plus generating one-fifth of campus electrical-power needs.

A handful of projects have involved co-generation systems at sawmills where in some cases, such as Stoltze Mill in MT, electricity is being sold back to an electric cooperative in addition to all heating and power generation at the facility.

The boom in natural gas exploration and inexpensive delivery has made the economics of wood best when matched up against fuel oil or propane. Therefore, conversions are focused in areas not readily served by natural gas.

Communication and trust building are vital to gaining public buy-in as well as air permits. In most cases, the air permits are easier to obtain than public consensus.

Through the American Recovery and Reinvestment Act, 22 Maine schools were converted from fuel oil to woody biomass for heating at a total cost of $25 million, with $10 million coming through the Act. As with other communities, air quality was raised as a concern. Dave Atkins recounts how far the technology has advanced.

In the fall, one of the Maine School Principals got a call asking when they would fire up the new system. 'It's been running for weeks now,' she replied.

The caller was amazed. He had not seen nor smelled smoke.

Atkins says, "This simple story will connect with the public way better than us being able to quote emission standards and how much below those standards these boilers are. Those numbers are important for acquiring permits but the story is going to mean more to most people in a community."

WHAT'S NEXT

USDA has a wood-to-energy initiative that is building private, state and federal partnerships to assist with the expansion of community wood-energy systems across the country.

Interest among the states and within communities continues to grow, according to Atkins. The state foresters from Pennsylvania, Kansas and Nebraska are working with the Wood Education and Resource Center to initiate projects. A Veteran's Administration hospital in Ohio, two community hospitals in Montana and one in Oregon installed wood boilers recently.

The USFS and the ***U.S. Endowment for Forestry and Communities*** are working with a team of financial experts to pilot a public-private pool of funds to accelerate public facility conversions in places where the conditions are right, i.e. dependence on fuel oil or propane, state policy advantageous to woody biomass, etc.

"If we can attract private funds it will significantly leverage existing federal, state and foundation contributions as well as increase conversions to woody biomass where traditional fuel is expensive," says Carlton Owen, President and CEO of the U.S. Endowment.

"There's no end to where this can go," says Atkins.

By Carla Harper
West 65, Inc.

"There's no end to WHERE this can go"

—Dave Atkins