

Wood Chip Heating for BIA Facilities New Mexico Case Study

*Native American Energy and Mineral
Institute*

May 16, 2006

What is this Project About?

Basically, the BIA Southwest Region proposes to assess the prospects of demonstrating biomass-heating systems on existing BIA facilities and tribally managed/owned facilities.

Why?

Project Objectives/Goals

A large pile of wood chips or mulch is the central focus of the image. The pile is composed of light brown, fibrous material, likely wood chips, and is situated in an open, dusty area. In the background, there are several large, rounded mounds of similar material. The horizon features a range of brown, rocky mountains under a blue sky with scattered white clouds. A tall, thin antenna tower is visible on the left side of the image. The overall scene suggests a wood processing or mulch storage site in a semi-arid region.

Seek viable solutions to forest product utilization challenges in support of fuels reduction activities, forest health/timber stand improvement projects, and assisting tribal and other forest enterprises seeking higher valued use for waste material.

Project Goals/Objectives



Demonstrate to tribes and ourselves that biomass heating and energy production is wise, and is economically and technologically sound.

Project Objectives/ Goals (cont'd.)

- Assist tribal and BIA facility/program managers in reducing heating and energy costs.
- Promote development of biomass energy projects both on and off the reservation where viable.
- Supports current national renewable energy emphasis



Who Has a Biomass Interest in NM

- BIA, Division of Energy and Mineral Resources Management (DEMRRM)
- New Mexico Intergovernmental Biomass Utilization Working Group (Federal & State Agencies)
- Southwest Sustainable Forests Partnership
- Dept. of Energy/ NREL
 - Tribal Energy Program
 - Federal Energy Management Program

Who Has a Biomass Interest (cont'd)

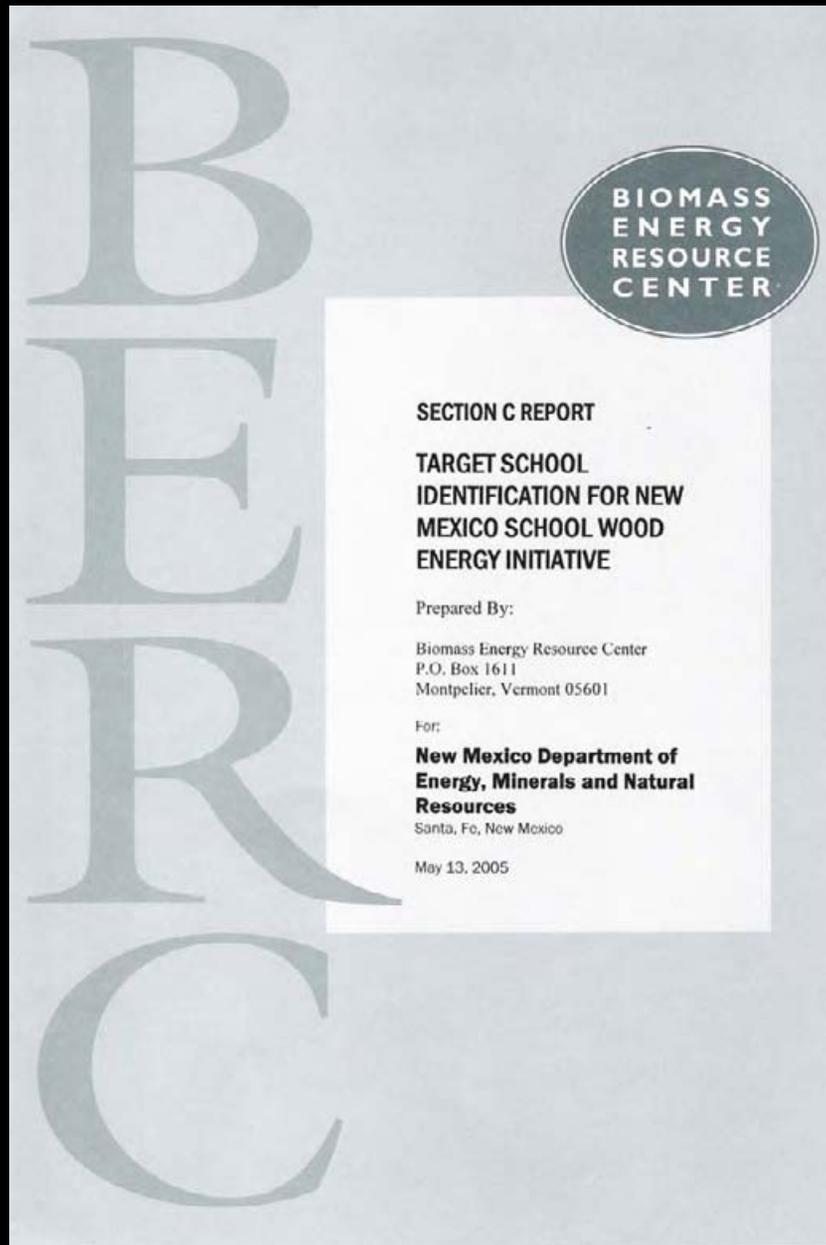
- Public Service Company of New Mexico (PNM), Biomass Energy Taskgroup
- Forest Energy – Wood Fuel Pellet Manufacturing, Espanola, NM
- US Forest Service Fuels for Schools Program
- NM State Public Schools and State Facility Management agency

How Did We Get Started?

Invited to participate in a NM State Dept. of Energy, Minerals and Natural Resources project.

And.....

Stressed an Indian Country Need!



Tribal Biomass Projects in the SW Region

- Southern Ute Tribe – Tribal Housing Develop, Centralized Heating Facility, (planning stages)
- Taos Pueblo – Tribal Facility Centralized Heating System (feasibility/assessment)
- Zuni Furniture Co.- Modular biomass energy system (system testing)
- Jemez Pueblo – Renewable Energy Assessment
- Mescalero Apache – MFP cogeneration utilizing mill residue (feasibility/assessment)
- Laguna Pueblo – Renewable Energy Assessment

What's in the Biomass Future for SWRO

Received FY06 funding from BIA, Mineral Assessment Program (MAP) to do resource assessments and feasibility studies for:

- 4 Regional BIA (schools and other facilities) and 4 Tribal Facilities (\$99,000)
- Mescalero Forest Products cogeneration facility (\$160,000)



Mescalero
APACHE SCHOOL



SHOW WHAT YOU
KNOW
"TEST YOU BEST"

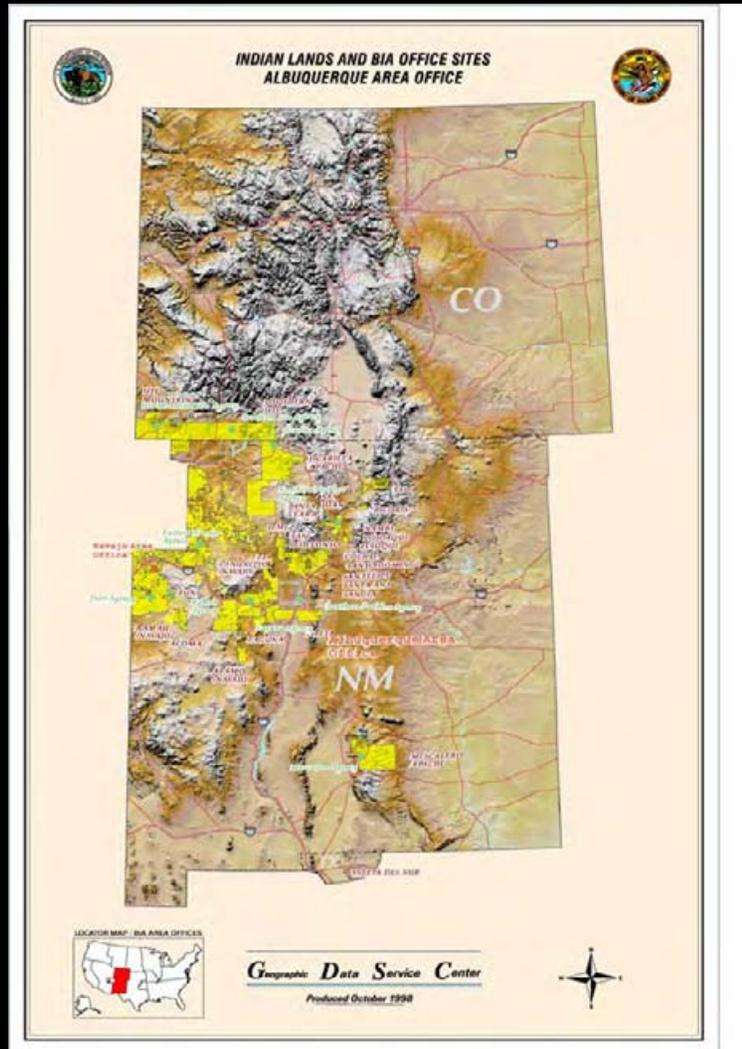


Mescalero Forest Products

Who Has Come Together so Far

- Developed a very valuable relationship with the Biomass Energy Resource Center (BERC)
- Facilitated several meetings with:
 - Tribal Representatives
 - BIA-Office of Facilities Management and Construction (OFMC)
 - BIA- Office of Indian Education Programs (OIEP)
 - DEMRM (Faline Haven)
 - BERC (Tim Maker)
 - BIA- Forestry
 - DOE & Sandia National Lab
 - Sen. Bingaman staff

What are the Project Steps



Task 1. Coordinate with the BIA-OFMC to gather available data, reports, and maps and analyze facility data on all BIA facilities within Southwest Region.

Task 2. Determine project assessment criteria.

Task 3. Screen data to narrow to 20 facilities for more detailed consideration.

Task 4. Visit promising sites to collect localized data and assess feasibility.

Task 5. Select 8 sites for detailed assessment:

- 4 BIA education facilities
- 4 BIA managed non-education facilities (smaller facilities)

What are the Project Steps

Task 6. Carry out forest/wood resource assessment within the geographic area of the selected facilities/tribes.

Task 7. Carry out feasibility studies for 8 selected facilities:

Second round of site visits

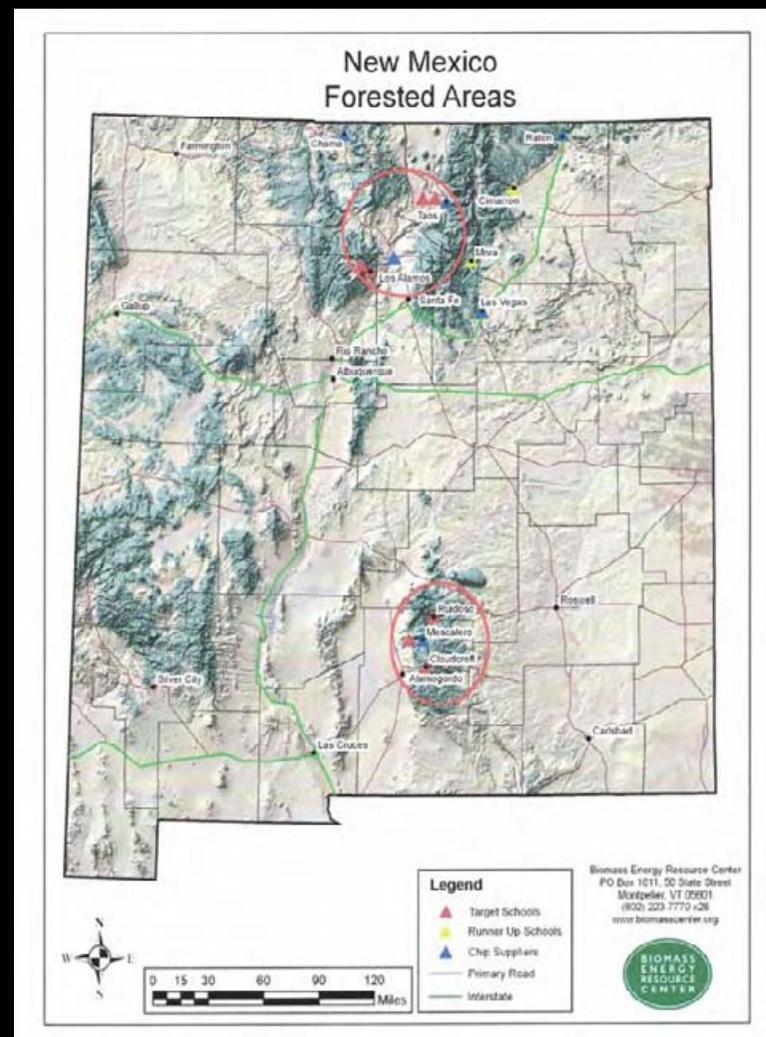
Financial and technology analysis of each site

Write report for each site

Task 8. Develop and deliver an education program for affected facility managers, program administrators, local facilities staff, and tribal officials.

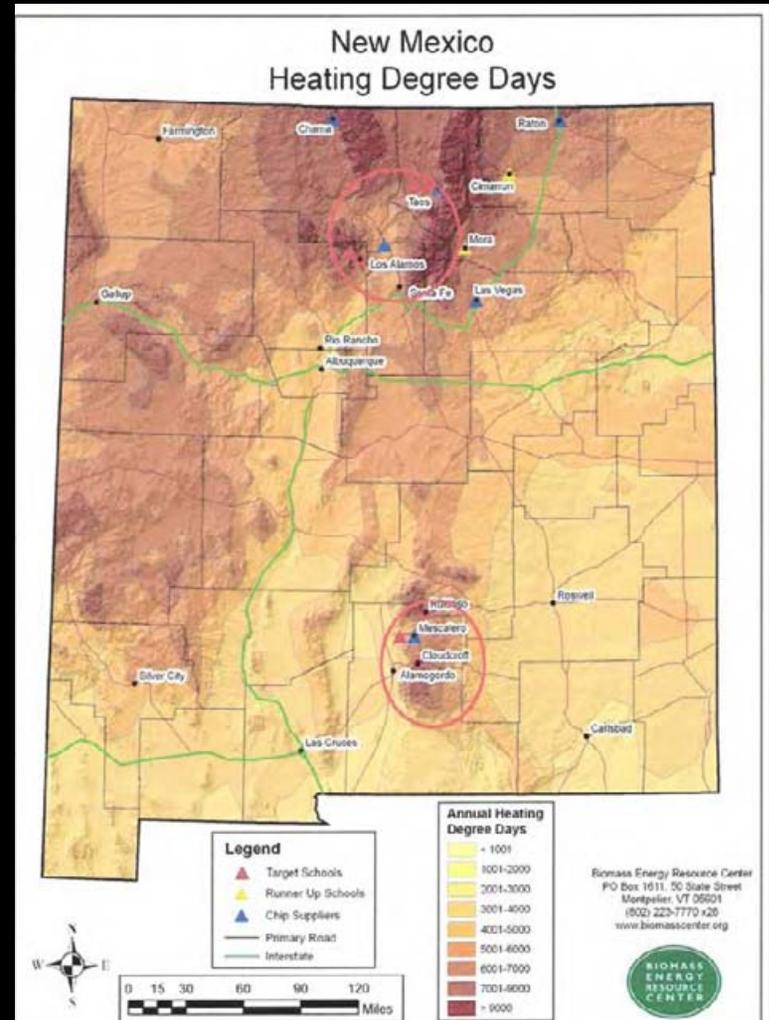
Task 9. Final report on biomass combined heat and power (CHP) potential.

Task 10. Provide final summary report on project.



Ideal Facility Criteria

Facilities with high heating demands and associated high costs of heating



Ideal Facility Criteria



Facilities with
boilers and
circulating hot
water or steam
heating systems

Ideal Facility Criteria

Facilities likely to begin a construction project in the foreseeable future



How School Wood Systems Work

- **Fuel Sources**
- **Fuel Transport and Delivery**
- **Building Space**
- **Fuel Storage at School**
- **Fuel Handling**
- **Combustion System**

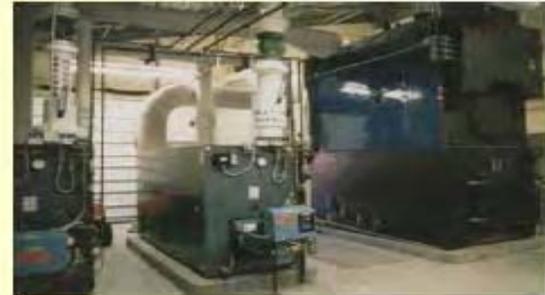


What Does the System Look Like

Wood-Chip Combustion



Wood boiler



Wood and backup boilers



A Valuable Connection

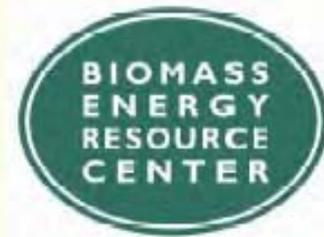
How BEREC Can Help Tribes and Agencies

- BEREC is a non-profit
 - with a community benefits mission
- We provide unbiased information – not selling a product
- We can help to:
 - Design and implement biomass energy programs
 - Put together and implement individual projects



BERC Services to Tribes and Agencies

- **Program design and implementation**
- **Training**
- **Tours of biomass energy facilities**
- **Feasibility studies**
- **Assistance in decision making**
- **Help with finding financing**
- **System design**
- **Project management**
- **Commissioning**



What We Also Want To Consider

Other Community Uses of Biomass Heating

- **Multi-Building Heating**
- **Community District Heating**
- **Public Buildings**
- **Campuses**
- **Businesses**



“Fuels for Schools” in Indian Country - Isn't This the Right Time?

