Northwest Missouri State University

A Twenty-Five Year Case Study

Wood-to-Energy Seminars
March, 2008

Our Challenge to You Is About

- Technology
- Wood Resources
- Biomass
- One Model
  - Sustainability
  - Stewardship
  - Community Building
  - Regional Development
“We all live under the same sky, but we don’t have the same horizon.”  Konrad Adenaur

Different Horizons For Different Folks
Nodaway County
### Historical Background

**ISSUES**
- January 1978, Utility Cuts Off the Natural Gas Due to Extreme Weather Conditions
- Fuel Oil Delivered Daily in a Tanker Truck from Memphis, Tennessee, 600 Miles Away

**SUSTAINABILITY**
- University Staff Highly Motivated to Reduce Dependency on Unreliable and Fragile Access to Traditional Fossil Fuel Based Energy Resources
- The Will to Explore a New Horizon of Innovation & Risk Taking

### Our Vision For Our New Horizon

- Availability of a Large, Diverse Supply of Non-Fossil Fuel Energy Resources - **Sustainability**
- Environmentally Safe and Compatible with Existing Campus Energy Systems - **Stewardship**
- Minimal Effect on Campus Aesthetics - **Community Building**
Our Vision For Our New Horizon

- Contributes to Conservation of Fossil Fuels - **Stewardship**
- Convenient Storage and Access
- Represents a Truly Regional Renewable Energy Source - **Regional Development**

Our Vision For Our New Horizon

- Designed and Constructed Using Off the Shelf Technology and Equipment
- Minimal Operator Training Required
- Enhances the Quality of Life for Regional Constituents - **Stewardship**
Our Vision For Our New Horizon

- Potential for Significant Cost Savings - Sustainability
- Provides for Redundancy and Diversity of Energy Resources
- Decreases Missouri’s Out of State Energy Dependency - Stewardship

Project Launched November 1979

- $2,000,000 @ 10 ¼% Conditional-Lease Loan for 10 years Plus 2 Years Construction.
- $1,500,000 Contract to Build the Alternative Energy System
- $500,000 for Transportation, Material Handling, Support Equipment
Wood Chips-Phase I-1983
Met 59% of the University’s Heating & Cooling Needs

1983 The University Used Only 41% Fossil Fuels

Paper Pellets-Phase II-1990
Met 21% of the University’s Heating & Cooling Needs

1992 The University Used Only 20% Fossil Fuels
Animal Waste-Phase III-1998

Met 5% of the University’s Heating & Cooling Needs

• Research Verifies Animal Waste is a Solid Biofuel Concept

• Significant Environmental Savings by Reducing:
  > Odors by 98%
  > Lagoon Solids by 95 Plus %

• Patented Process in Place

1998 The University Used Only 15% Fossil Fuels

2008 A Twenty-Five Year Summary

• Conditional-Lease Paid Off in 8 years

• Saved the State of Missouri by 2008 Over $13,000,000 in Fossil Fuel Costs –Stewardship

• Savings Generating $1.5 Million Annually –Stewardship

• Reduced Missouri’s Dependence on Imported Fossil Fuels-Sustainability

• Reduced Area Landfill Input by 40%-Sustainability
2008 A Twenty-Five Year New Horizon Summary

• Major Shift in Campus, Community Horizons Toward Collaboration, Partnerships and a Growing Sense of Regional Community Responsibility

Major Shift in Campus Culture

• The New Horizon Became Engrained in the Culture
• Became More Entrepreneurial
• Emphasis on Doing the Right Things Through Innovation
• Strong Vision of Purpose and Common Direction
A Growing Sense of Responsibility for Adding Quality to Campus Life

• Non-Recycled Paper-to-Energy Five-County Partnership-1990

• First State Agency to Adopt Ethanol in 1993

• Animal Waste-to-Energy Partnership With Livestock Cooperate Industry-1995

• First State Agency to Adopt Bio-Diesel in 1997

A Growing Sense of Responsibility for Adding Quality to Campus Life

• Adopts Malcolm Baldrige Processes

• In the Top Three of the Nation’s Most Cost Efficient Universities in Instructional Delivery-2003

• In the Top Five of the Nation’s Universities for Student Recycling Efforts

• University Students Contribute Over 40,000 Hours to Community Annually
A Growing Sense of Regional Community

Collaborative Initiatives

• Center for Applied Research- 1985
• Education and Healthcare Partnership-1988
• Introduced the Healthy Communities Model-1992

A Growing Sense of Regional Community

• Annual Healthy Communities Summit-1993
• Northwest Resource Team-1998
• Leadership Northwest Missouri-2001
A Growing Sense of Regional Community

Collaborative Initiatives

- The Great Northwest Day at the Capitol-2003
- Culture Of Character/Partners Achieving Character Excellence-2005
- The Governor’s First P-20 Initiative in the State-2007

Another Opportunity On The Horizon For Us
“We all live under the same sky, but we don’t have the same horizon.”

Konrad Adenaur

What Could Your Shared Individual or Community Future Horizon Look Like or What Would You Want it to Look Like?
Create a New Shared Horizon for Personal Change

- I am Change
- I am the Future
- I am Progress

Create a New Shared Horizon for Personal Change

- I am Possibility
- I am Potential
- I am Contribution
We Are Distracted Each and Everyday From Our New Horizon

“As If we all knew where we’re going.”
Conflicting Priorities?
Carbon Dioxide: To Much of a Good Thing

All Biofuels Are Not The Same When it Comes to CO₂

• “The only time biofuels cause a reduction in carbon dioxide emissions is when abandoned farmland [or CRP acreage] is used to grow biofuel feedstocks such as perennial grasses or when the biofuels are made from corn stover, forest thinning or trimmings and other wastes [unrecycled paper & animal waste], the study found.”

Nature Conservancy and University of Minnesota…Phillip Brasher, Register Washington Bureau, Friday, February 8, 2008
What Could Your New Wood-to-Energy Shared Horizon Be?

“One is hard pressed to think of any organization [Community] that has sustained some measure of greatness in the absence of goals, values, vision and missions that become deeply shared throughout the organization [Community].”

Peter Senge
The Fifth Discipline
Dr. Bob Bush  
Retired-Northwest Missouri State University  

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