OPPORTUNITY: ENVIRONMENTAL STEWARDSHIP

ENERGY: ALTERNATIVE FUELS, INNOVATION, LEADERSHIP

EDUCATION: RECYCLING, CONSERVATION, WASTE REDUCTION

THE DIFFERENCE IS YOU!
Northwest’s **Power House** has been in operation for over 100 Years.

Originally Coal-Fired, it was equipped for **WOOD FUEL** in 1981.

• The Power House and Chiller Plant are connected by a 2 mile network of utility tunnels throughout the Northwest campus.

• That tunnel network carries not only **Steam**, but also **HVAC Chilled** water to more than 30 buildings.
The Wood Project

• Originally conceived as a way to utilize the plentiful supply of wasted scrap wood and mill byproducts from around the region, for the past thirty years Northwest has been a recognized leader in alternative fuel production.

Throughout the year, wood chips are hauled to Northwest. The wood chips are moved in walking trailer beds that hold up to 25 tons of material. 

1 Ton of Wood chips provides approximately 14,000,000 BTUs, or the equivalent of 4,000 KWH of Electricity...

That is enough electricity to power the average 3-BEDROOM HOME for over 4 months!
Northwest collects, and transports its wood to the plant from across Missouri, Iowa, and Nebraska.
Alternative Fuel Boiler operation is carefully monitored 24 hrs a day for **SAFETY** and **MAXIMUM EFFICIENCY**
In 1992 further Power Plant modifications and additions were made to accommodate pelletized material.
Clean Paper and Cardboard

Since 2000, on-campus paper collection alone has helped to divert more than 30% of Northwest's generated solid waste away from the landfill; a total of 6.2 million pounds
Northwest has collected and processed more than 50 tons of mixed paper from around the region so far this year.

100,000 lbs. of WASTE Diverted from the Landfill
Paper and Cardboard Processing

- Waste Paper is delivered to the Pellet Plant.
- The paper is ground into a fine fluff.
- It is then Densified and Pelletized at a rate of up to 2 tons per hour.
The 3 inch by 5/8 inch paper pellet can now be easily handled and burned. Paper pellets produce energy at an average rate even greater than wood chips:

16,000,000 Btu per ton.
IN 2000 NORTHWEST RECEIVED A PROCESS PATENT FOR CONVERTING ANIMAL WASTE INTO FUEL PELLETS.
In 2008 fuel oil was reintroduced to the Power Plant in cooperation with a local alternative fuel supplier.

Maryville processing plant uses an autoclave to extract fuel oil from used tires.

Northwest’s use of this product at the power plant saves an average of 14¢ for every gallon burnt when compared to Natural Gas.
Northwest Missouri State University

2009-2010 Alternative Fuels Totals

- 9,395.89 tons of wood chips
- 2,135.07 tons of paper and manure pellets
- 62,593 MMBtu of natural gas
- 31,580 gallons of pyrolysis oil from CMC
The Pellet Plant not only collects and produces paper and animal waste pellets, it also processes scrap wood and grinds collected glass for use in landscaping and road maintenance.

Located on Country Club Drive at the northwest corner of campus, the community is invited to drop off their Mixed paper, cardboard, and glass.
There are more than 200 recycling stations on campus. They can be found in multiple locations, at least on every floor of every academic building on campus. There are also bins located in every Residence Hall lobby.

For more than 15 years Northwest has provided recycling to the campus community.
In cooperation with the City of Maryville and the Northwest Regional Council of Governments, the University sought and received a Regional Solid Waste Management District Grant to expand recycling in the city. Northwest Grounds Hardscape team designed and constructed 3 recycling trailers for paper and glass collection in Maryville. The bins are located in 2 high traffic city parks and in a lot adjacent to downtown government buildings.

Since setting the bins Feb. 25th, City of Maryville has Diverted 5.8 Tons of recyclables from the landfill.
Beginning Weight: 1300lbs
Final Weight: 700lbs

- **44% RECYCLABLE!**

- We recovered:
  - 290 lbs mixed paper
  - 200 lbs plastic
  - 20 lbs glass
  - 10 lbs aluminum
  - 80 lbs compost

- This was a single dumpster on a single day, just one of the 31 dumpsters found around campus. Since July 1st 2010 Northwest has hauled nearly 1,229,456 lbs of trash to the landfill, at a cost of over $32,000. That’s less than a year, and probably 44% more than necessary.
Northwest Recycling Committee

As a group of dedicated Staff, Faculty, and Students; The GREEN TEAM has been leading sustainability efforts on campus for a number of years. They have not only supported and promoted recycling, they have partnered with many groups on campus and in the community to insure that Northwest champions the principles of environmental stewardship. Their personal commitment has lead to the creation of a truly remarkable educational opportunity for our students.
In the month of March 2011, the Northwest campus generated 97 tons of solid waste. Recycling and composting collections diverted more than 28 tons of that waste from the landfill. A diversion rate of over 29%.

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The Three R's: **Reduce ➔ Reuse ➔ Recycle**

Northwest's Recycling Guidelines - "What we collect"

- **Plastics** - Items stamped 1 or 2. Remove & discard bottle caps. Rinse container.
- **Glass** - Bottles and Jars only. Remove & discard lids. Rinse container.
- **Aluminum** - All drink cans.
- **Paper & Cardboard** - We accept any paper or cardboard products.
- **Wood** - Place any scrap wood or lumber next to your outside paper collection dumpster.

"The most important way to tackle waste is simply to avoid making it. If you don't produce it, you don't have to dispose of it."
“The Ultimate RECYCLING”

With increasing landfill costs, expanding government regulation, and the increasing need for synthetic fertilizers:

Composting
Makes $SENSE$

As much as 20% of solid waste sent to the landfill is Organic Materials.
COMPOSTING
Northwest Began Collecting Compost From The Union Cafeteria Kitchen in 2010

- A compost test site was established Spring 2011.
- A cooperative effort between the Farm, Ag department, and the Environmental Services team.
- Initial testing and data collection for Future Large-scale Compost Operation

- New Recycling Centers will open this fall at all Union Dining Locations. Recycling, Food Collection, and water removal will decrease land-filled trash by as much as 50%.

- With a recorded 500,000 Union Food Court Transactions, Dining Operations required the use of more than 30,000 trash bags last year.
VISIT US ON THE WEB:

• **WWW.NWMISSOURI.EDU**
  – About Us:
    • Sustainability at Northwest
  – Resources:
    • Environmental Services
      – Facility Operations
      – Sustainability Office
      – Landscape Services
  • Email: sustain@nwmissouri.edu