

Introduction to Biomass Energy Technologies and Applications

Randy Hunsberger

Are there biomass projects that
make sense for you?

- Think about:
 - Your resources
 - Your energy use and cost

Government

- negative
- + positive

\$ Money \$

- negative
- + positive

Feedstocks

Wood

- Logs
- Chips
- Pellets
- Sawdust

Agricultural

- Residues
- Closed loop
- Algae

Waste

- MSW
- Tires
- Landfill gas

Anaerobic digestion

- Food waste, human or animal waste

Energy, water, chemicals, people, etc.

Process

Pellet stove or wood stove
Combustor/boiler
+steam turbine
Gasifier
+gas turbine or gas engine
Pelletizer + bagger, etc.

Air emissions,
Liquid emissions,
Solid emissions (ash)

Product /output

Heat
Electricity
Liquid fuels
Gaseous fuels (syngas)
Chips
Sawdust
Pellets

(co-products)

Market

Projects?

- Existing projects
- Planned projects
- Possible projects

Contact Information

- Randy Hunsberger
- National Renewable Energy Lab
- randolph.hunsberger@nrel.gov
- 303-275-3214