



The Economics of Biomass

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Energy

- ✧ Importance

- ✧ Sources

- ✧ Non-Renewable vs. Renewable



Background


- ✧ Solar energy stored organic matter in trees, agricultural crops, & living plant materials
- ✧ Formation of Biomass
- ✧ Current Consumption in the U.S.
- ✧ Possible Usage

Potential Supply

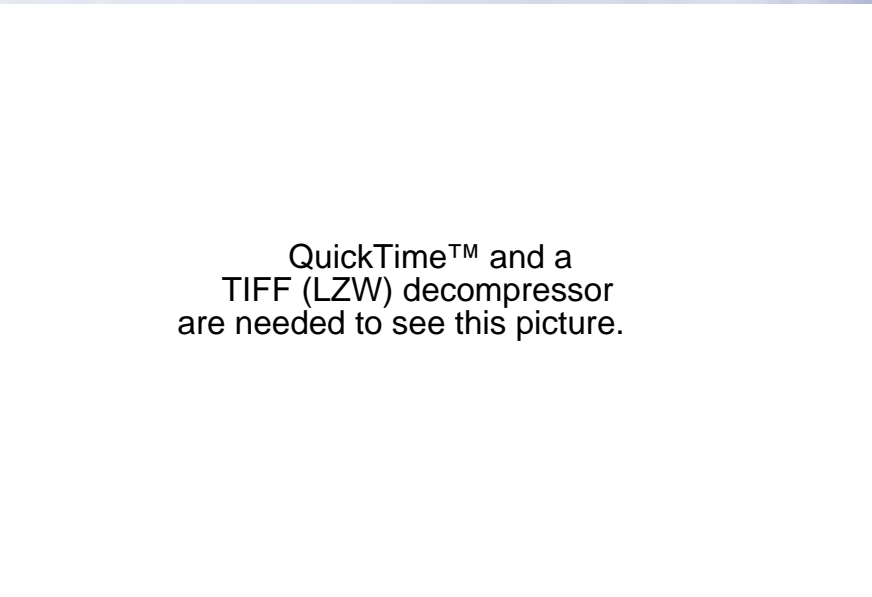
✧ Region suitable for production

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Methodology

- ✧ Potential supply: data on land productivity, biomass production costs, and the cost of land for alternative uses
- ✧ Supply price: present value of estimated revenue and costs over a production cycle (n years)

Potential Biomass Crops

Grass Crops

Yield Scenarios (Dry Tons/Acre)

Wood Crops

Yield Scenarios (Dry Tons/Acre)

Region	Crop	Mi Acres	2000	2005	2020	Crop	Mi Acres	2000	2005	2020
N. Central	Switchgrasses	200	4.2	4.8	6.0	Poplar	177	3.1	5.1	7.1
N. East	Switchgrasses	36	3.7	4.3	5.3	Willow	36	4.2	6.4	8.1
S. Central	Switchgrasses	64	5.1	5.9	7.4	Poplar	41	2.6	4.6	6.8
S. East	Switchgrasses	22	6.0	6.9	8.6	Poplar	22	3.0	5.0	7.3

Source: Data from Department of Energy's (DOE), Oak Ridge National Laboratories (ORNL) & USDA's Conservation Reserve Program (CRP)



Advantages

- ✧ Environmental Benefits
- ✧ Renewable
- ✧ Cost-efficient
- ✧ Fewer demands on Earth's resources
- ✧ May increase number of jobs



Disadvantages

- ❖ Small plants used = inefficiency?
- ❖ Could be significant contributor to global warming because fuel has low heat content



Future of Biomass

- ✧ Government Intervention
- ✧ Market Opportunities
- ✧ Keys to Success:
 - ✧ Low cost power technology
 - ✧ Improved feedstock production systems