

How shall we manage forest and non-forest resources to provide a more even supply of service and products to people? Wood, paper, energy, recreation, biodiversity, conservation – all have to be considered.

What Should Be Done?

Use local resources in lieu of imported fossil fuels

Policies and incentives need to be established that equally support rural development objectives in addition to environmental goals.

Sustainable forest management guidelines are being developed. We should apply the same diligence to protect community economic development.

Create short supply chains to keep producer and consumers linked.

Invest in the R&D to deliver new technologies to harvest, process, and transport biomass that are scale sensitive.

Encourage local entrepreneurship rather than massive workforces.

Develop woody supply assessment tools and certification systems to ensure sustainable forest management.

On the Other Hand ...

Local communities should make better use of their local resources than choosing incinerators.

Small refineries are not practical as they require high levels of capital investment and can't supply energy needs.

Siting biomass plants locally is no guarantee wealth will be shared with the community.

Local ownership and control cannot ensure that sustainable standards of production and harvesting will be upheld.

Approach 2 Developing Our Communities

Supporters of Approach 2 agree that much is needed to reinvent our energy system and renewable sources must be a part of that future. Woody biomass, however, is not a perfect solution. Advocates of Approach 1 assume that we have complete knowledge about developing a biomass system. We do not. Many unknown challenges lie ahead. For example, woody biomass is bulky to move and store. One challenge is to overcome this obstacle by ensuring we link biomass development to rural revitalization. Biomass can be beneficial if sourced and utilized locally. In order for biomass to support rural community development we must prioritize ownership, infrastructure, and scale issues that are appropriate to the community. Failure to prioritize the geographical context in which the biomass is located through policies and programs will result in a loss of benefits to rural people and places.

One example of the challenge that lies ahead can be seen in the costly development of an efficient and modern infrastructure capable of making the most of wood's stored energy. As compared with coal, wood is far less energy dense, much bulkier and therefore more expensive to transport and store, limiting its utilization to proximities usually within 50-75 miles. This reality does not have to be an obstacle; it can be an asset for local rural development. If woody biomass is difficult to move around and store for long periods of time, then it is best if embedded in the places in which it resides. Not only will that solve infrastructure challenges, it will create economic and civic benefits for rural communities. The new adage, "all biomass is local", speaks to the need by supporters of Approach 2 to consider ownership, structure and scale issues that are appropriate to the community. Otherwise benefits may be lost if policies and programs do not prioritize the geographical and social context in which the biomass is located.

Ownership Matters

Some of our energy needs can be met by woody biomass if we prioritize rural development needs. This will require linking biomass development to policies, technologies, and infrastructures designed for rural revitalization. Local, cooperative or municipal ownership of developments has a positive impact on the long-term well-being of local markets and the civic life of communities. The benefits from biomass will not automatically accrue to local communities simply because entrepreneurs begin to harvest timber or when farmers begin to produce perennial crops. They must be locally owned and operated to ensure that the multiple benefits from biomass continue to circulate in rural communities rather than leave the area.

Large scale production systems owned and operated by investors who have no stake in the well-being of the community will make decisions based solely on production, yield, and profit rather than considering the host of complex issues communities are faced with, such as environmental responsibility and community well-being. Firms that are embedded in local supply chains and institutions can be held accountable for decisions that impact community residents, such as the jobs they do or do not create, the infrastructure changes they ask the community to pay for, and the environmental standards they wish to achieve. In being connected to their neighbors by a shared sense of place, local control ensures the social and economic needs of the place are fore-grounded. Firms embedded in national and international networks answer to investors who are removed from the community and have different interests. This practice will limit the rural development potential of woody biomass. From farming communities in California controlled by large scale agribusiness, to the coal-mining towns of Appalachia, the negative impact of non-local ownership on communities is well documented.

To prevent this from occurring in Michigan communities, we need community mitigation plans around biomass. Such mitigation plans can help monitor the effects of biomass production and processing and even improve the quality of life within the community. They can also empower the residents of the community to be creative problem solvers and establish an economic, social and political environment that will protect and enhance local livelihoods.



Cropping Systems

A second concern to ensure that biomass development is linked to rural revitalization is to consider the trade-offs that will come as a result of the cultivation of short rotation woody biomass crops. If farmers take fallow land and place it in switchgrass or willow production it is unknown how these practices will impact local labor markets. Will they take laborers from other areas of the economy and create hardships for other producers? Will the rising prices associated with these perennial crops impact economic livelihoods of other sectors of the economy, such as paper and pulp producers? The production of \$6 per bushel for corn ethanol raised the price of

animal feed creating severe hardships for livestock producers. It is also unknown how much fallow land is available for producing fuel crops. Economists may have a handle on available acreage but we know nothing about land owners' willingness to return the land to cultivation. The reasons land owners leave their property fallow are numerous and complex and extend beyond mere economic returns.

Supporters of Approach 2 also say that geographical scale and location of the firm and its supply chain can also have significant impacts on the environment. Concerns for production, yield and profitability can put pressure on decision makers to downplay the needs of the environment. Aggressive harvesting of timber to maximize profit can result in soil erosion, reduce bio-diversity, lead to deforestation and habitat loss. Biomass can be produced and harvested in environmentally responsible ways but measures must be taken to ensure that these practices are enforced. The destruction of the natural resource base will be devastating to rural community well-being. The primary focus of any energy development initiative must be sensitive to scale and ownership issues so that the needs of communities and sustainability is not sacrificed to values of productivity and profit.

