

Department of Agriculture, Trade and Consumer Protection
Division of Agricultural Development
Agricultural Development & Diversification Program (ADD)
Grant Project Final Report

Contract Number: 24078

Grant Project Title: Northern Wisconsin Biomass Development Project

Amount of Funding Awarded: \$25,000

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Report Submitted on: September 15, 2010

Project Summary Biomass continues to hold great promise as a significant renewable energy resource that is abundant in Wisconsin. While biomass will certainly be sourced from urban locales such as landfills and from industrial processors, the majority of biomass marketed in the future will be grown for specific uses or new markets will emerge that utilize biomass residual wastes, such as harvest residues and slash generated from logging activity. Wisconsin's agricultural producers and forestland owners not only have a great opportunity as biomass suppliers, they also have an opportunity to build the processing and supply infrastructure through locally-owned businesses like a cooperative and share in the success of such ventures. As an example, Xcel Energy's Bay Front biomass expansion project is expected to result in direct payments of more than \$5 million annually to its local biomass suppliers, and could necessitate the need for additional storage and/or processing infrastructure to meet this and other regional biomass demands. In this example, the possibility of receiving Biomass Crop Assistance Program payments could also increase the value of the biomass by as much as \$2.5 million and help reduce capitalization costs for processing and storage infrastructure.

Current renewable energy standards—particularly those promulgated in 2005 Wisconsin Act 141—have created early commercial markets for biomass principally used for the generation of electricity. The purpose of the *Northern Wisconsin Biomass Development Project* was to provide a preliminary assessment of marketplace opportunities related to the retrofit of Xcel Energy's Bay Front electric generation station that was approved by the Wisconsin Public Service Commission. Further, the project also evaluated other biomass market opportunities, including a private venture that would process biomass into motor fuel and other products. Together, these two markets would require an estimated 720,000 tons of biomass annually.

This project evaluated the woody biomass supply controlled by members of Midland Energy¹ in its service region. With involvement of the cooperative's board of directors, the project also evaluated two potential business ventures and determined the approximate revenue requirements and major limitations for each to provide the board with a better understanding of capitalization requirements, risks, and the overall feasibility of the ventures. Specifically, this project evaluated the feasibility of constructing a biomass storage facility to support Xcel Energy's Bay Front Unit #5 conversion to assure a continuous supply of biomass, and the expansion of the co-op's operations to include a timber sales management services division. Each venture was evaluated on the basis of delivering value to the cooperative's forestland owners. The construction of a biomass receiving station would increase the local biomass market by an estimated 25,000 tons annually by providing excess storage capacity to increase biomass supply during the spring break-up period. While Xcel's Bay Front plant now consumes approximately 250,000 tons of biomass annually and has operated without the need for an off-site biomass storage facility, current suppliers believe supply constraints will become an issue if the plant doubles its demand as proposed.

¹ Midland Energy is the dba for Midland Services Inc., an energy cooperative headquartered in Ashland, WI.

By the nature of being a cooperative, the timber sales management venture would operate on a non-profit basis and members who use the service would build equity in addition to their sales proceeds. The study also looked at several other services that the cooperative could offer to distinguish itself, such as acting as a marketing intermediary to accelerate member cash flow and offering contracting and other services with the objective of maximizing members' net sale proceeds. While there are several companies that provide forestry consulting services, very few of these firms have a contractual duty to maximize an owner's net sale proceeds.

Creation of sustainable biomass markets and their value to rural communities continues to be of great interest to state policymakers, industry, and rural landowners and others. Midland Energy members own between 200,000 and 400,000 forested acres and 12,000 to 14,000 acres could be harvested sustainably each year. Nearly all agricultural producers in this region own forested acreage and many rural residents also own forested land. Emerging biomass markets in the Ashland area have enhanced landowner income, diversified market risks, and have reduced the economic impact of timber industry facility closures in the region. As state and federal policies reshape the energy industry, without a doubt, biomass will play a much greater role in Wisconsin's energy future. Increase demand and competition for biomass resources is certain to have a positive economic impact on Wisconsin's rural communities. Early investments targeted at capturing the value of this emerging market largely based on locally-owned business models will assure that rural residents realize the full benefits of our shifting energy policy.

The primary focus of this project was to evaluate potential cooperative business opportunities largely related to the conversion of Xcel Energy's Bay Front unit #5 boiler from coal to biomass. Cooperative Network and management and board representatives from Midland Energy met with Xcel Energy before the utility's project was approved by the Wisconsin Public Service Commission (and before submitting an ADD Grant request) to explore the potential as a supplier or vendor of services to complement the utility's effort.

Midland Energy's board of directors and management further narrowed the scope of this project to evaluate two business ventures they believed to be appropriate, viable ventures. This project relied on interviews with loggers, biomass suppliers, biomass purchasers, state and federal agency representatives, equipment suppliers, and published information as a basis for forming conclusions presented in the preliminary feasibility report. While financial and regulatory considerations are an important and necessary component of this work, equally significant are the impacts of policy and regulatory decisions and their effect on emerging biomass markets.

In May, the Wisconsin Public Service Commission received notice from Xcel Energy that it expected to exceed the project cost cap for the boiler conversion project. At a minimum, the project will be delayed for one year. Some believe these higher costs will end Xcel Energy's plans for converting unit #5 to biomass. Likewise, the availability of Biomass Crop Assistance Program (BCAP) payments could make a measureable difference for the project's financials. However, due to the uncertainty of future BCAP collection, harvest, storage and transportation payments, these incentives were not considered in the preliminary feasibility assessment. Policy and regulatory determinations are particularly difficult risks to manage for projects whose early existence depends largely on such decisions.

Access to capital has also become a much greater barrier for most businesses. Lending resistance toward enterprises focusing on emerging markets such as biomass is even greater. Even with significant government commitments, the ability to obtain private financing does, and at least for the short-term will continue to limit biomass activities. The current economic cycle has shifted many institutions to a position of risk intolerance and as a result, lending is at the lowest levels in decades. It is our understanding that the inability to obtain sufficient financing continues to be a major challenge and is the primary reason that plans to construct a significant biomass processing facility in the region have not advanced.

The primary object of this study was to evaluate potential cooperative biomass business opportunities in northern Wisconsin. The project's scope was narrowed to focus on two potential cooperative ventures—construction and operation of a biomass storage facility, and timber sales management services. The report concludes that:

- Many of Midland Energy's 22,000 members own forest land. Co-op management believes that the members view the co-op as a trusted business. If verified in subsequent analysis, these members might be receptive to the co-op's establishment of a timber sales management service.
- Near-term trends in wood supply and demand in northern Wisconsin are difficult to predict, because of uncertainties related to the two largest potential increases in biomass use in the region—the conversion of a boiler at Xcel's Bay Front plant in Ashland to biomass, and Flambeau River Biofuel's proposed biorefinery in Park Falls. In addition, there has been a steep drop-off in traditional wood and pulp industry during the recession, and it is unclear how fast and to what extent the industry will recover.
- Midland Energy would incur substantial costs in developing and operating an off-site biomass storage facility serving the Bay Front plant. Unanticipated cost overruns associated with the planned conversion may derail this effort. Further, it is unclear at this time whether or not Xcel would be willing to enter into a contract with the co-op that would make these investments worthwhile if the boiler conversion moves forward.
- Timber sales management services would represent a new business activity for Midland Energy. However, because of the biomass component of these services, they do fall within the co-op's broad mission as an energy service business. Based on a preliminary analysis, these services may be of benefit to members who have forest land, but may not be profitable or only marginally profitable to Midland Energy as a business activity.

While additional work would be required to refine the preliminary analysis to develop a detailed business plan in pursuit of constructing a biomass storage yard, it would be premature to do so at this time. It is clear that without an additional, significant market such as the conversion of unit #5, there isn't enough demand to support a stand-alone biomass storage facility in the region. Midland Energy will continue to follow the developments in Xcel Energy's Bay Front certificate of authority process. Pending the actions of the Wisconsin Public Service Commission it may be appropriate to continue earlier discussions had with Xcel Energy to definitively determine their interest in an independently operated biomass storage facility.

While a more defensible case can be made for the timber sales management services venture, largely in that it could potentially increase timber value for cooperative members who are now supplying pulpwood and other forest products to existing forestry industries, emerging biomass markets would likely increase the need for these services. To that end, Midland Energy continues to engage in active discussions with the Living Forest Cooperative, a local cooperative that provides forestry management services to a much smaller subset of woodland owners.

Emerging biomass markets offer great potential in rural Wisconsin. New markets will allow some producers to diversify and limit their total market exposure; provide additional income from under utilized resources; and a short window of opportunity will exist for producers to capture a greater share of the market if they choose to invest in locally-owned businesses that will market these new commodities. However, during the infancy of this industry, many of these markets have been or will be incentivized by federal and state policies. Great consideration should be given to the significant value of state and federal incentives, but at the same time it is also prudent to evaluate the impacts of their loss. Some of these uncertainties can be at least minimized with the use of long-term contracts and other risk-management instruments.