

**Bowyer**

**An Assessment of the Potential for Bioenergy and Biochemicals Production from Forest-Derived Biomass in Minnesota:**

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A report for the Blandin Foundation Vital Forests/Vital Communities Initiative and Iron Range Resources.

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Potential petroleum demand/supply imbalances pose a significant challenge for the people and economies of all regions, but particularly those regions such as Minnesota and the Lake States that do not have petroleum or other fossil fuel reserves. On the other hand, regions rich in biomass such as Minnesota and the Lake States may have a substantial opportunity going forward to ensure future energy supplies while enhancing economic growth.

Current technology provides a number of options for conversion of biomass and other biomaterials to energy. The options available include direct firing for electrical generation, production of ethanol and bio-diesel, and use as a fuel in steam generation for either large-scale district heating or for powering manufacturing operations.

In 2005 renewables accounted for about 86 trillion Btu of Minnesota's energy production, or about 7.1 percent of total energy consumption and in 2006 renewable energy production included about 11 percent of electricity, 10 percent of gasoline, and 2 percent of diesel. The state currently ranks 4 th in production of wind energy, 4 th in production of ethanol, and 8 th in production of biodiesel.

It is clear that there is considerable potential for generating electricity from agricultural and forest biomass in Minnesota given the right economic conditions. There is also substantial potential for increasing liquid fuels production from biomass, with the caveat that the technology needed to bring about that payoff is as yet unproven from a commercial standpoint. Production of industrial chemicals from biomass offers another great yet-untapped opportunity for Minnesota.

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