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Contact: Rachel Retterath  
701-315-0083  
[rretterath@greenergy.com](mailto:rretterath@greenergy.com)

### **Dakota Spirit AgEnergy biorefinery evolves into hybrid concept based on study results**

Dakota Spirit AgEnergy, a proposed cellulosic biorefinery near Spiritwood, N.D., has evolved from a 20 million gallon per year (MGY) cellulosic ethanol plant into a 58 MGY “hybrid” ethanol plant comprised of a 50 MGY dry mill ethanol plant (Phase I) and an 8 MGY cellulosic ethanol addition (Phase II).

The changes are driven in part by the results of a recently completed “Feedstock Supply and Product Marketing Study” that was funded in part by the North Dakota Agricultural Products Utilization Commission (APUC).

“This project is a good example of our ongoing efforts to create new markets for our farmers, to add value to our quality products, to create new jobs and to help the nation reduce its dependence on foreign oil,” Governor Jack Dalrymple said. “The biorefinery will be part of a larger, integrated energy project that will utilize steam power from Great River Energy’s Spiritwood Station combined heat and power plant.”

The hybrid approach provides better economies of scale – reducing both capital and feedstock costs – and makes a stronger overall project.

The feedstock study showed that Dakota Spirit AgEnergy would need corn stover plus wheat straw from an expanded 100 mile radius to adequately source enough residue material for a 20 MGY cellulosic biorefinery. The amount of residue needed from such a large area was a limiting factor for a plant of this size.

The product market study verified the market values for the three main product streams – ethanol, molasses and lignin – across various market applications.

The 50 MGY conventional ethanol plant would utilize corn to produce ethanol, corn oil and dried distillers grains. The 8 MGY second-generation ethanol plant would utilize corn stover and wheat straw to produce cellulosic ethanol, C5 molasses, and lignin, a boiler fuel.

The “Feedstock Supply and Product Marketing Study” summary report (APUC Project BD0009-15) is available online at [www.DakotaSpiritAgEnergy.com](http://www.DakotaSpiritAgEnergy.com).

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### **About Dakota Spirit AgEnergy**

Dakota Spirit AgEnergy, currently a wholly-owned subsidiary of Great River Energy, is leading the development efforts to bring the biorefinery to fruition in Spiritwood, N.D. The Dakota Spirit AgEnergy plant itself would ultimately be owned and operated by a group of key stakeholders, including strategic and local investors.

### **About Spiritwood Station**

Great River Energy's Spiritwood Station is a combined heat and power plant under construction near Spiritwood, N.D. When the plant goes online in 2012 it will generate two primary products, electricity and steam. The plant will have the capacity to generate up to 76 megawatts (MW) of baseload electricity and up to 23 MW of peaking electricity for the regional energy market. It also will supply steam to the Cargill Malt plant.

### **About Great River Energy**

Great River Energy is a not-for-profit cooperative which provides wholesale electric service to 28 distribution cooperatives in Minnesota and Wisconsin. Those member cooperatives distribute electricity to more than 645,000 member consumers – or about 1.7 million people. With more than \$3 billion in assets, Great River Energy is the second largest electric power supplier in Minnesota and one of the largest generation and transmission (G&T) cooperatives in the United States. Great River Energy's member cooperatives range from those in the outer-ring suburbs of the Twin Cities to the Arrowhead region of Minnesota to the farmland of southwestern Minnesota. Great River Energy's largest distribution cooperative serves more than 120,000 member-consumers; the smallest serves about 2,400. For more information, visit [www.GreatRiverEnergy.com](http://www.GreatRiverEnergy.com).

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