

THE SUBCOMMITTEE ON ENERGY, SCIENCE AND TECHNOLOGY
OF THE UNITED STATES SENATE
COMMITTEE ON AGRICULTURE, NUTRITION, AND FORESTRY

TRANSFORMING FOREST WASTE INTO BIOFUELS

AND TO ADDRESS

THE CURRENT PROHIBITION ON ETHANOL PRODUCED FROM FOREST
WASTE COUNTING TOWARDS THE RENEWABLE FUELS STANDARD.

SUBCOMMITTEE HEARING

2:00 PM, August 18, 2008

South Dakota School of Mines and Technology

Rapid City, South Dakota.

Testimony of Randy Kramer, President and Dave Litzen, Vice-President

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Rapid City, South Dakota

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Senator Thune, Senator Johnson, thank you for the opportunity to provide testimony on the current prohibition on ethanol produced from forest waste counting towards the new renewable fuels standard. I am Randy Kramer, President and co-founder of KL Process Design Group (KL), a biofuels engineering and project development firm located here in Rapid City. Our co-founder and Vice-President, Dave Litzen is here with me today and will also provide testimony. Beginning in 2001, KL has collaborated with researchers at the South Dakota School of Mines and Technology to develop a thermal-mechanical process to make ethanol from ponderosa pine which is found in abundance in the Black Hills National Forest. The research resulted in what we believe to be the first demonstration plant capable of commercial operations using wood waste to produce ethanol. Since its start-up in August 2007, Western Biomass Energy has provided cellulosic ethanol to its first customer, the American Lemans Racing Series, which is the first racing series to supply its teams with E85 produced from wood waste. Our local production will also offset transportation for ethanol coming into the Black Hills from long distances.

Our efforts and research are dedicated to forest stewardship that includes finding better uses for gathered forest and mill waste that otherwise provides added fuel to forest fires. The Black Hills National Forest Supervisor and his staff have been cooperative in our research efforts and we all agree that the Black Hills National Forest is an exemplary case study in proper use of a National Forest, respecting the interests of both the citizens and forest products industries that co-exist in and around the Black Hills.

KL is uniquely qualified to discuss the implications and effects of the cellulosic ethanol provisions legislated in the 2007 Energy Bill. Beyond our experience in grain and cellulose-based ethanol plant designs, our engineers are veterans of oil exploration and refining and our project managers are veterans of combat operations in oil-rich areas of the world. While our team's cellulosic ethanol technology helps reduce the United States' dependence on foreign oil, our plants eliminate particulate emissions resulting from controlled and uncontrolled fires in our National Forests, costing the federal government millions of dollars to manage. For all of the combustion engines on the road today, there is no better technology than biofuels produced from wood waste that can readily demonstrate a self-sustaining and environmentally-responsible solution to our nation's current energy needs.

With the new mandate to increase the use of ethanol made from feedstocks other than grain, commercialization of these technologies is needed now to meet the Renewable Fuels Standards. KL stands ready to meet that need. While we begin the commercialization of cellulose-based ethanol, we must protect grain-based ethanol and guard against misrepresentations, driven by oil, grocery and extreme environmental special interests, that either link high grain prices to the production and use of ethanol or wrongly portray that the utilization of waste wood coming from existing federal timber sales will turn our National Forests into "tank farms" for biofuels production. There are many factors that cause food prices to rise and it is well known, through USDA statistics, that oil price increases, not the production of ethanol, are the main reason for increases in the price of corn and other grains. Incentives and public support for both corn and

cellulose based ethanol must be maintained just as the incentives for oil discovery were put in place and have been maintained since 1925.

This past spring, President Bush stated that the United States has not built a refinery since 1976. In fact, the 84 new ethanol plants built over the last ten years have effectively replaced the need for approximately eight new averaged-size oil refineries. This assumes 115,000 barrels per day of crude feed with 50% of the crude converted to gasoline. The difference is crude oil will only be extracted once where bio-refining feedstocks that include wood waste are replenished every year. Again, this bright spot in renewable energy growth was overshadowed by the media who conveyed the negative, misinformed messages sent out by special interests, which ultimately led to a slowdown in the capital markets that once supported the industrial growth of ethanol production. We need to get back on track.

As we grow our cellulosic based business model, our plants will be smaller and decentralized throughout the United States co-locating with or close to biomass sources immune to the geo-agricultural constraints and dependence on regulated markets associated with grain based ethanol production, thereby eliminating or reducing the cost of transporting biomass material and in close proximity to populated areas with a requirement to use biofuels. This design disarms critics who believe ethanol production is too remote from the end user and makes use of biomass that is either burned or land-filled. To illustrate, in the Black Hills National Forest, where tons of particulate matter are pushed into the atmosphere through the prescribed burning of underbrush, this same

thinning material can be used as a feedstock to produce a renewable, clean-burning fuel and potentially drop fuel prices in the Black Hills between \$0.05 and \$0.10 per gallon.

To meet the requirements of the RFS, we know there will be a need to continue improving efficiencies in grain and cellulose based designs to move us quickly to what we call the “glucose economy” where starch or cellulose provide the sugars used to produce chemicals and bio-fuels. The United States possesses the biomass to meet the needs of a glucose economy and is well-documented in the Department of Energy’s own “Billion Ton Study” conducted at the Oak Ridge Laboratory in April 2005. As noted in the study, much of this biomass is located on federal lands to include our national forests. To sustain the momentum of building additional bio-refineries that meets the intent and aggressive mandates of the RFS, administrative rules must allow for all reasonable forms of biomass without regard to its source.

As we plan for our next plant, a key consideration is the ability to use the incentives put in place in the 2007 Energy Bill. However, as the bill was finalized, we now understand that the National Resources Defense Council influenced legislation that exempted biomass taken from the National Forest to count towards the renewable fuel standard. Specifically, credits intended for cellulosic ethanol produced from biomass harvested from our National Forests through federal programs already in existence, were taken away by special interests without the support of our legislators. The intent of this last minute provision was to discourage the harvesting of material from the National Forests for bio-fuels production. However, the drafters failed to understand that existing timber harvest programs already allowed for the removal of material from the National Forests.

Any reasonable person would understand that processing waste thinnings into a clean burning fuel is less destructive to the environment than burning it in place. To provide an example a bit closer to home, the Black Hills National Forest today has 1.2 million dry tons of thinnings and slash on the ground. As a feedstock for a cellulosic ethanol plant with electrical power cogeneration capability, this material could be used to produce 50 million gallons of fuel ethanol while exporting 18 megawatts of electrical power. To put this amount of energy production in perspective, the Rapid City area consumes approximately five million gallons of ethanol per year and 650,000 megawatt-hours per year. At today's consumption rate, the material that is currently collected and piled in the Black Hills could provide ten years of ethanol and three months of electrical power for Rapid City.

In the case of commercial timber harvested through these federal programs, mill waste from these operations fit perfectly with our business model but the burden of segregating non-credit qualifying bits of National Forest mill waste from private or state timberland mill waste that do qualify is as impractical as it sounds. Imagine the complexity of separating mill waste for the sake of recovering valuable cellulosic ethanol credits. The cost would likely outweigh the credit. We live near a National Forest and consider ourselves active stewards of the environment. Our desire is not to clear-cut the forest to produce biofuels, but given existing timber harvest programs, credits from these operations are critical to the near term success of cellulosic ethanol. The process improvements we make during this developmental period will enable us to keep pace with the 2022 RFS goals.

To conclude, we want to thank Senators Thune and Johnson and Representative Herseth Sandlin for bringing this important forest management and renewable energy issue to the Congress. Just as they joined in an effort to save Ellsworth Air Force base, we are proud to see this demonstration of unity, along with assembling bi-partisan support throughout the House and Senate for this legislation.