

Testimony of

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Subcommittee on Clean Air and Nuclear Safety
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Chairman Carper and Members of the Committee, thank you for the opportunity to speak to you today. My name is Kelly Tiller. I am the co-director of Bioenergy Programs at the University of Tennessee and President of Genera Energy, where I am coordinating an unprecedented investment of more than \$70 million for a statewide Biofuels Initiative that demonstrates at a large scale the assembly and integration of all of the moving pieces in this industry value chain and facilitates the development of a new biomass-based energy industry in the state.

The expanded Renewable Fuel Standard (RFS) established in 2007 provides a market-based platform supporting and accelerating the commercialization of second generation cellulosic and advanced biofuels. Meeting the ambitious directives of the RFS—36 billion gallons of biofuels, with 21 billion from greenhouse gas-reducing cellulosic and advanced biofuels by 2022—will require rapid buildout and expansion of cellulosic biofuels.

Cellulosic Ethanol & The RFS

For several years, we have been on the verge of technical and commercial feasibility for cellulosic ethanol. We are no longer on the verge. Technological breakthroughs and progress on technical milestones are occurring rapidly. Cellulosic biofuels are being produced today in several pilot and pre-commercial demonstration facilities, with more than two dozen new pilot, demonstration, or commercial scale projects ranging from the development to construction phases.

We still need an intense focus on the basic science, like those coordinated out of the DOE’s three bioenergy research centers. It will take years to fully optimize conversion processes and technologies, but we are close enough to remove technology as a barrier to start-up.

Sustainable, Affordable Biomass Feedstocks

Perhaps the most significant remaining barrier to commercial success of advanced biofuels is the availability of large quantities of sustainably produced biomass feedstocks, at prices that are attractive to both farmers and biorefineries. This is not as simple as picking regionally appropriate and sustainable feedstocks. Producing sustainable biomass feedstocks is only one piece of the entire biomass feedstock supply chain.

In Tennessee, we have had the opportunity to learn much about the integrated biomass supply chain for switchgrass as a dedicated energy crop to supply a cellulosic ethanol biorefinery. Through the state’s Biofuels Initiative, we have partnered with DuPont Danisco Cellulosic Ethanol (DDCE) and jointly invested in a pilot scale cellulosic ethanol biorefinery and process development unit in East Tennessee. The Vonore biorefinery is under construction and on schedule to begin production by the end of this year.

To supply the pilot biorefinery and conduct large scale feedstock R&D and develop a portfolio of uses for switchgrass, we are contracting with farmers within a 50 mile radius of the biorefinery to grow 6,000 acres of switchgrass, with nearly 3,000 acres already in production on more than 30 local farms.

Switchgrass has proven to be an ideal platform for our work to develop an integrated biomass supply solution. Switchgrass in Tennessee has yielded 6-10 tons of carbon sequestering biomass per acre, grown on marginal cropland not well-suited for food and feed crops, with minimal use of fertilizer and other chemicals, without irrigation, using existing farm equipment.

Efforts are underway to increase the productivity of switchgrass (e.g., through traditional crop breeding, development of new herbicides, improved crop management practices, and genetic modification to make it better tailored as an energy crop). However, the relative high costs of harvesting, handling, densification, storage, and transportation of feedstocks appear to offer the most significant opportunities for near-term gains in feedstock efficiency and costs.

Without a doubt, commercial success of advanced biofuels will require development of sustainable, integrated biomass feedstock systems that are largely nonexistent today. To be prepared to handle the millions of tons of biomass feedstocks required to meet the RFS, we need more focused effort on biomass feedstock production, supply chains, and logistics.

Predictable, Supportive Policy & Investment Climate

Substantial investment and participation of the private sector is also clearly required to meet the expanded RFS. A predictable investment climate is essential to enabling the commitment of the private sector, whose participation is necessary to maintain momentum in developing next-generation, non-food biofuel feedstocks, and achieving the critical RFS goal of making the use of renewable fuels a standard component of the transportation fuel market.

Stable policies and market-based supports for the biofuels industry are critical. Plans under development today for a commercial cellulosic biorefinery to be constructed in 2012, commencing operations in 2013, and financed in part with long-term debt will require long-term predictability in policies to move forward.

Thank you again for the opportunity to appear before you today. We have already started down the path to buildout of a large-scale commercial cellulosic biofuels industry. Now, we must ensure that we achieve the profound positive impacts that cellulosic biofuels are poised to deliver. We need a focused effort to develop biomass feedstock systems—not just crops, but entire integrated systems—that maximize environmental benefits while minimizing unintended consequences, at costs that are attractive to both farmers and biorefineries. We need policies that promote long-term stability and a market that is attractive for investment. Supportive, achievable market-based underpinnings like the RFS are setting the stage for success.