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Private Forests and the Renewable Fuel Standard

On December 19, 2007, the President signed into law the Energy Independence and Security Act of 2007 (EISA). This law (PL 110-140) includes an increase in the national Renewable Fuel Standard (RFS) mandating the production of 36 billion gallons of renewable fuels by 2022. Within the mandate, 16 billion gallons must be produced from cellulosic feedstocks, such as wood, grasses, and agricultural residues. An important component of the RFS is a series of greenhouse gas emissions screens, essential safeguards that ensure renewable fuels will meet minimum verifiable reductions in greenhouse gas emissions. For renewable fuels (from new facilities) to qualify under the RFS, they must achieve at least a 20 percent reduction in direct and indirect lifecycle emissions compared to equivalent petroleum fuels. Cellulosic fuels are subject to a 60 percent emissions screen. Because of these stringent safeguards and the large quantity of fuels required, it is paramount that we not exclude feedstocks without valid reasons. The definition of 'renewable biomass' included in the law, however, does rule out a number of feedstocks, including some woody biomass from private forests.

The definition includes usage of "*planted trees and tree residue from actively managed tree plantations on non-federal land cleared at any time prior to enactment…*" and "*slash and pre-commercial thinnings that are from non-federal forestlands…*" This language limits the use of merchantable trees to those coming from tree plantations. Only logging residues and pre-commercial trees can be used from naturally-regenerated forestlands.

There are a number of reasons why a broader inclusion of private forests in the definition of renewable biomass would be beneficial for the RFS, global climate, and our forests:

Significant Potential

U.S. forests cover 750 million acres (Alvarez 2007), of which approximately 57% are owned by private citizens, families, private cooperatives, industry, investment funds, and institutions. The majority of these forests rely on natural regeneration for stand establishment instead of the artificial regeneration (i.e., planting) used in plantation forests. Furthermore, these forests are heavily concentrated in the northern and southeastern parts of the country (Alvarez 2007), where agricultural feedstocks may not be as available as they are in the Midwest and western states.

No Indirect Greenhouse Gas Emissions

Emissions restrictions in the RFS explicitly include both **direct *and* indirect** emissions of greenhouse gases. Current estimates of **direct** lifecycle emissions for cellulosic fuels show reductions in the order of 88-94 percent compared to petroleum fuels (Schmer et al. 2008, Union of Concerned Scientists 2007). However, recent publications (Searchinger et al. 2008, Fargione et al. 2008) highlight the potential magnitude of indirect emissions caused through land use change. These emissions are associated with the clearing of new farmland to compensate for those crops and farmlands that are diverted towards the production of biofuels. Although indirect emissions could become a major stumbling-block to producing climate-friendly biofuel feedstock on agricultural land, more research is needed to understand how to fully measure and attribute these effects. In the meantime, prudency would suggest that we place greater emphasis on those feedstocks which do not impact agricultural markets. This includes wastes and residues; such as agricultural wastes, food processing byproducts, and urban wood waste; and feedstocks produced on non-agricultural land, such as algae and woody biomass from existing forestlands **–** including the extensive privately-owned, naturally-regenerated forests throughout the nation.

Valuable Stewardship Tool

Biomass harvesting can be a valuable tool to help improve stand conditions in a number of forest types for a number of management values. On many acres across the nation, the restoration of historic fire regimes through hazardous fuels reduction is a management priority. In those forests where hazardous fuels reduction is warranted, appropriate use of hazardous fuels reduction can decrease fire intensity, fire frequency, and fire velocity, as well as the likelihood that a fire will evolve into a highly destructive crown fire (Duvenek and Patterson 2007, Agee and Skinner 2005, Brose and Wade 2002, Pollet and Omi 2002, Finney 2001, Fulé et al. 2001, Stephens 1998, Kalabokidis and Omi 1998, Weatherspoon and Skinner 1996). **In forests where stand conditions (and associated fire regimes) have radically departed from the past, restoration of historical conditions may require vegetation management across a wide spectrum of tree species, ages, and sizes - not only the removal of "*slash and pre-commercial thinnings*" allowed by the current definition.** In addition to fire management, biomass harvesting has the potential to be an important component of management for other values and objectives. Thinning can be used to improved tree vigor, increase drought tolerance, and increase growth by decreasing the stand density and reducing competition among trees for sunlight, water, and nutrients (Smith et al. 1996). Because vigorous, healthy trees are generally more resistant to pests, thinning can be a successful means to reduce the extent and lethality of insect infestations in many forest systems (Fettig et al. 2007, Romme et al. 2006). Restoration and improvement of wildlife habitat in many circumstances depends on harvesting trees and forest biomass (McComb 2007, Gram et al. 2003, Desseker and McAuley 2001, Hume et al. 1999). Like restoration of historic fire regimes, **restoration or creation of specific habitat components may require management of a variety of trees other than just small trees and brush**. The removal of biomass of all size-classes is also a regular component of management for a number of other forest values, including recreation, aesthetics, and watershed functioning (Stednick 1996, Troendle 1983).

The RFS Definition and Sustainability

The definition of 'renewable biomass' included in the RFS was crafted to serve a laudable purpose – to ensure that the RFS provides incentives for sustainable stewardship of our nation's precious forest resources. Unfortunately, the current definition is NOT based on ecologically meaningful sustainability criteria. Instead, it is an arbitrary series of exclusions based on ownership and regeneration systems. As result**, material from the most poorly managed forest plantations is eligible to be included in the RFS while trees from well-managed, sustainably-harvested federal and private forests are not.** Indicators and criteria of sustainability need to be based on objective, ecologically meaningful factors such as forest type, climate, topography, soil characteristics, fire regime, and local biodiversity. Sustainable forestry is not a simple concept; it means tailoring management practices to achieve multiple objectives, while improving and maintaining the productivity and ecological functioning of forested ecosystems – far more than simply avoiding the cutting of large trees.

<u>Conclusion</u>

Private forests and woodlands have the potential to contribute substantially to the production of sustainable biofuels and be a powerful tool for improving the quality of stewardship in many forests for a number of values, including wildlife habitat, forest hydrology, hazardous fuels reduction, and pest management. To this end, it is essential that biofuel incentives promote sustainable management practices. The broad exclusions included in the renewable fuel standard (RFS), however, are not appropriate. **A transparent and inclusive dialogue among stakeholders, interest groups, and policymakers will be a necessary step in developing a new definition that is flexible enough to utilize sustainably-produced woody biomass from all ownerships and regions where it is be an appropriate and sustainable management tool.**

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