

Policy Statement: Forest Biomass

Approved 1/4/10

Summary

Biomass removal and utilization can provide ecosystem benefits by reducing forest fire risk, improving forest stand health and productivity, helping to meet rural community economic development goals as a renewable energy source, and mitigating climate change. Considerable risks are also associated with biomass removal including adverse effects on biodiversity, soil productivity, wildlife habitat, both water and air quality, and reduced carbon storage and sequestration. A finite supply of forest biomass exists that can be produced sustainably, and source forests cannot produce enough wood to meet more than a fraction of aggregate U.S. energy demand. Future demands for both existing and new competitive uses of woody biomass may produce an unsustainable market demand on U.S. forests. Public policy should limit the use of biomass to the amount that can be grown, harvested, and supplied sustainably.

The degree to which the use of forest biomass can mitigate build up of greenhouse gases is directly related to:

- the future condition of the residual forest stand;
- the carbon emitted in growing, harvesting, and transporting the biomass;
- the relative efficiency conversion of biomass to energy; and
- the total carbon footprint of forest products versus products they might replace.

The Forest Guild believes that source forests should always maintain the functions, structures, and composition that support the health of the entire forest ecosystem. The Forest Guild supports federal, state, and local policies that guide sustainable management practices at the stand level for biomass as well as its efficient post-harvest use. Each state should implement or amend best management practices (BMPs) to include biomass harvesting standards appropriate for forest types in that state.

This biomass policy statement focuses on four issues: 1) assurances for sustainability; 2) highest and best utilization of biomass for energy; 3) climate change mitigation; and 4) biomass removal on public lands.

I. Assurances for Sustainability

Public policy should limit demand for biomass to the amount that can be grown, harvested, and supplied sustainably. Policies that create or subsidize biomass production programs or facilities should ensure a sustainable yield capable of meeting annual targets and long-term goals. Source forests should always maintain the functions, structures, and composition that support forest health. A combination of the following approaches can be used to provide increasing levels of assurance that biomass removals are sustainable:

- **Sustainable biomass retention standards applicable at the stand level** – Current and future policies will offer subsidies and incentives to stimulate the development of bioenergy facilities that utilize forest biomass. It is important that source forests are capable of filling this demand without compromising forest health. Strong stand-level harvesting and management standards provide the first level of assurance to prevent over harvesting.
- **Forester licensing at the state level** –The Forest Guild believes all forest management activities, including those involving the removal of biomass, should be conducted by professional foresters licensed at the state level. Ensuring that all biomass harvests are conducted by licensed foresters provides a basic level of assurance for sustainability.

- **Management plans for biomass harvesting** – Management plans should explain the silvicultural approach to sustainable biomass production and measures that will be taken to determine that the volume of biomass to be removed will not adversely affect forest health, productivity, and biodiversity.
- **State-based initiatives for biomass harvesting** – Many states have voluntary BMPs, but most of those do not yet account for forest health effects that may occur under increased biomass removal such as site disturbance due to removal of whole trees, depletion of soil nutrient levels, or mechanical collection of slash. Moreover, existing BMPs and biomass harvesting guidelines do not address broader questions of sustainability such as social equity, endangered species protection, or long-term flow of high-value forest products. Nor do they account for maintenance of on-site carbon stores – a necessary requirement for evaluating the usefulness of biomass production to mitigate atmospheric carbon. Integrating biomass harvesting standards into state-based voluntary BMPs or regulations is one way to provide higher degrees of assurance of sustainability.
- **Third-party forest certification** – Sustainability assurances should be required in forest ownerships where biomass material receives incentives or will be counted toward renewable fuels or energy standards. Existing forest certification programs could be tailored to include criteria that cover sustainable removal of biomass and carbon storage in addition to their many sustainability requirements.
- **Regional and project-level supply sustainability** – Public policy should limit the use of biomass to the volume that can be grown, harvested, and supplied sustainably. Forest-based biomass energy facilities should document a sufficient and sustainable supply. Factors that should be considered include: net growth, percent of net growth that could be harvested sustainably (without long-term depletion of forest carbon stocks) under biomass harvesting standards; the pre-existing uses of wood in the supply area; current and projected quantity available by the current and projected landowner base; and cumulative impact of existing biomass or other wood-using facilities likely to be permitted. Source forests should also be capable of maintaining a sustainable supply, with important exceptions such as harvests that control invasive species, enhance critical biodiversity habitat, or reduce wildfire risk.

II. Highest and Best Utilization of Biomass for Energy

Use of forest resources should be as efficient as possible while maintaining forest ecosystem health so that society reaps the greatest rewards. Biomass policy should acknowledge the advantages of appropriately scaled, local applications by assisting community-based initiatives to compete for funding and provide a level playing field for subsidies and incentives.

- **Appropriate scale of biomass facilities and utilization** – The Forest Guild believes that appropriately scaled, community-based uses for biomass developed through a collaborative process yield significant benefits for rural communities and reduce concerns about sustainability. Community-based uses are typically thermal or combined heat and power (CHP) applications and yield far greater energy efficiencies than stand-alone electrical generating facilities or liquid biofuels production. Community-based applications can be located in proximity to the forest source so as to significantly lower transportation distances and costs. Community-based applications lend themselves to local stakeholder involvement, and foster a sense of community by providing jobs and cycling dollars within the local economy.
- **Subsidies for biomass energy** – Potential uses of forest biomass range from 100-megawatt and larger electrical generating facilities, to boilers for municipal facilities, to firewood or wood pellets for home heating. Woody biomass can be used to produce several forms of energy, including electricity, thermal energy (heating and cooling), CHP, a variety of solid uses (chips, pellets, biochar), liquid fuels (cellulosic ethanol, bio-oil, biodiesel) and syngas. The use of biomass for small-scale heating and

cooling and CHP are the most efficient energy uses of our forest resources. Policy should reflect the full social and environmental costs and benefits of biomass and its alternatives. Subsidies should avoid unintended market distortions that might favor less efficient or more damaging uses for biomass or that would undermine other desirable uses for the raw material. The effects of subsidy or incentive programs should be monitored and appropriate adjustments made as needed. Forest biomass should be regarded as one component of a comprehensive energy strategy that addresses our total consumption and reduces the use of fossil fuels while increasing the use of renewables in the most efficient manner possible. Energy policy should design renewable energy portfolios to provide a level policy playing field for different fuels and the uses of those fuels.

- **Limited utilization of higher-value trees** – When trees are harvested for energy generation, the focus should be small-diameter and/or economically low-value trees and the treatment of fire risk reduction, removal of invasive species, and maintenance/enhancement of biodiversity, forest health, and productivity.

III. Climate Change Mitigation

A finite supply of forest biomass exists that can be produced sustainably, and source forests cannot produce enough wood to meet more than a fraction of aggregate U.S. energy demand. However, forest biomass can play an important role in mitigating climate change when biomass comes from source forests that are managed to sustain forest health, productivity, function, structure, composition, and carbon stocks. Forest ownerships that take advantage of subsidies or incentives for biomass production should ensure that these sustainability requirements are met. Forest biomass can be a significant tool in mitigating climate change by providing renewable energy that has less of an impact on the accumulation of atmospheric carbon when compared with fossil fuels and some other biogenic crops.

- **Sustainable use of forest biomass to mitigate climate change** – In the context of climate change and carbon mitigation, the term “sustainable” must be broadened to encompass sustainable yield, the sustainability of ecological values, and a system-wide consideration of the total carbon kept out of the atmospheric carbon pool. Biomass harvests must focus on long-term forest health and productivity since most forest-based carbon remains on site stored in the soil, dead wood, and standing residual trees. Large trees in intact forests have the potential to store carbon for many centuries while continuing to remove additional amounts from the atmosphere. Once the biomass leaves the forest, its effectiveness as a renewable energy source to help mitigate atmospheric carbon emissions and slow climate change will depend on its use and method of combustion.

IV. Biomass Removal on Public Lands

Federal and state public lands that are designated as management areas suitable for timber production should be available for biomass removal when conducted under sustainability guidelines in accordance with regulations in place and when compatible with other important values provided by those lands.

- **When biomass removal is in the public interest** – Public forests are established to serve public values. Climate change mitigation is a new but increasingly important public value that can be serviced by renewable fuels such as forest biomass. In addition, many of our fire-dependent public forests are faced with an accumulation of hazardous fuels from past fire suppression activities and insect infestations. From a public safety perspective, it is important to restore the health of these forests by reducing fuel loads, and in some cases, thinning may help conserve carbon by reducing the severity or frequency of wildfires. Public agencies should develop guidelines that address unique local impacts associated with biomass harvesting.