

## **What Role Will Forests Play in America's Long-Term Energy Future?**

### **Key Findings and Policy Considerations**

National priorities for climate change mitigation and renewable energy production will significantly increase the use of biomass for energy. New markets for woody biomass will create important opportunities to improve forest management on both public and private lands, and it is clear that wood will play a significant role in America's energy future. The extent of this role will ultimately be determined by what is economically and environmentally sustainable. Recent federal and state policies have established ambitious goals for biofuels production and electric power from renewable sources. Analysis of the biomass needed to meet the combined goals for renewable electricity and renewable fuels production in terms of net growth and growing stock on US timberlands suggests that the achievement of these goals by 2025 will present a significant challenge in terms of woody biomass supply and forest sustainability.

### **Key Findings of the Pinchot Institute Analysis**

- According to a 2007 Department of Energy study, meeting a 25 percent renewable fuel standard by 2025 would require the production of 28 billion gallons of cellulosic ethanol.<sup>1</sup> Producing this volume of cellulosic ethanol would require approximately 325 million dry tons of biomass, 92 million dry tons of which would likely be supplied by wood and wood residues. When considering current stocking levels of productive forests in the US South, this equates to an additional harvest of 3 billion cubic feet per year.
- Similarly, DOE projects that achieving a 25 percent by 2025 Renewable Electricity Standard would require 545 million dry tons of biomass annually, including 449 dry tons from wood and wood residues. When considering current stocking levels in productive forests in the southern US, this equates to an additional harvest of 19.7 billion cubic feet per year.
- The combined effect of simultaneously implementing a 25x'25 Renewable Electricity Standard and a 25 percent renewable fuels standard would require an additional 22.7 billion cubic feet of wood annually, not including forest residues. The combined demand for bioenergy and biofuels production would more than double annual timber harvest in the US from an average of 15.5 billion cubic feet over the past two decades to more than 39 billion cubic feet.
- Meeting these requirements would present a major challenge, given the current extent and growth characteristics of US forests. The diversity of landowner objectives will limit the

<sup>1</sup> Energy Information Agency. 2007. Energy and Economic Impacts of Implementing Both a 25-Percent Renewable Portfolio Standard and a 25-Percent Renewable Fuel Standard by 2025. SR/OIAF/2007-05. US Department of Energy, Washington, DC.

potential woody biomass supply from private forests, as will policy objectives on public forests. Further limitations through statutory exclusion of large areas of public and/or private forest land could be counterproductive in that it could concentrate demand on the remaining area of forest and increase the risk of unsustainable forest management.

## **Policy Considerations**

- Utilization of forest biomass should be guided by informed and insightful policies that facilitate a diversity of types, scales, and locations of bioenergy or biofuels facilities that are well matched to local circumstances; and are grounded in a continued commitment to the conservation and sustainable management of forests for the full range of values and services they represent.
- Rapid restructuring of the energy sector may have unintended consequences for forest biomass resources. After considering the implications of the 2007 DOE study, future policies may need to allow for more flexible timelines and approaches to simultaneously achieving both renewable fuel and renewable electricity production levels.
- Wood is not an unlimited resource. In crafting tax subsidies and other financial incentives, policy makers should consider incentives for the commercialization of technologies that utilize wood resources as efficiently as possible.
- The federal bioenergy research agenda should seek to define the optimal combination and scale of technologies that will optimize efficiency in the use of woody biomass in meeting the nation's renewable energy and climate mitigation goals, while ensuring that forests continue to be sustainably managed for a range of public values.
- Climate, energy, and natural resources policies should be carefully integrated. Legislation to mitigate climate change or increase the production of renewable energy should be considered in the context of existing policies governing the conservation and sustainable use of forest resources.
- In making future choices about individual bioenergy and biofuel projects, it is essential that both the energy industry and local communities have access to accurate information regarding locally available and sustainable supplies of woody biomass. This is necessary for determining the type and scale of bioenergy or biofuel facility that will best meet both our energy and natural resource needs for the long-term.