

National priorities for climate change mitigation and renewable energy production will significantly increase the use of biomass for energy. Recent federal and state policies have established ambitious goals for biofuels production and electric power from renewable sources. Energy conservation and the expansion of zero-carbon energy sources like wind, solar and geothermal will get us part of the way there, but renewable and carbon-neutral sources of biomass must inevitably play a significant role. A Pinchot Institute for Conservation analysis of the combined goals for renewable electricity and renewable fuels production and their effect on 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 DOE study,¹ meeting a 25 percent renewable fuel standard by 2025 would require the production of 28 billion gallons of cellulosic ethanol. Producing this volume of cellulosic ethanol would require approximately 325 million dry tons of biomass, 50 million dry tons of which would likely be supplied by harvested roundwood. When considering current stocking levels of productive forests in the southern US, this equates to an additional harvest of 3 billion cubic feet per year (the current total wood harvest in the US is approximately 15.5 billion cubic feet annually).
- Similarly, DOE projects that under a 25 percent by 2025 Renewable Electricity Standard, power generation from woody biomass will likely increase to 495 billion kilowatt-hours. To produce this much electricity would require 548 million dry tons of biomass annually, 60 percent of which would come from harvested roundwood. 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 current total wood harvest in the US is approximately 15.5 billion cubic feet annually).
- The renewable biomass supply necessary to meet goals for both a Renewable Fuels Standard and a Renewable Electricity Standard has to come from the same limited resource. The Pinchot Institute analysis shows that 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 timber harvest from an average of 15.5 billion cubic feet over the past two decades to more than 39 billion cubic feet.
- Forest landowners and the public value forests for other reasons besides biomass production. Supply limitations based on harvest controls or landowner preferences will intensify

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

pressures on the remaining area of forest increasing the risk of overharvesting and 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 biomass resources. After considering the implications of the 2007 DOE study, future policies may need to allow for more flexible timetables for simultaneously achieving both renewable fuel and renewable electricity production levels.
- Wood will continue to be a scarce 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 resource policy must be integrated. Legislation to mitigate climate change or increase the production of renewable energy should take into account the effects of increasing biomass harvests.
- In making individual choices about future bioenergy and biofuel projects, both the energy industry and local communities must have access to information regarding locally available and sustainable supplies of woody biomass. This is essential for determining the type and scale of bioenergy or biofuel facility that will best meet both their energy and natural resource needs.

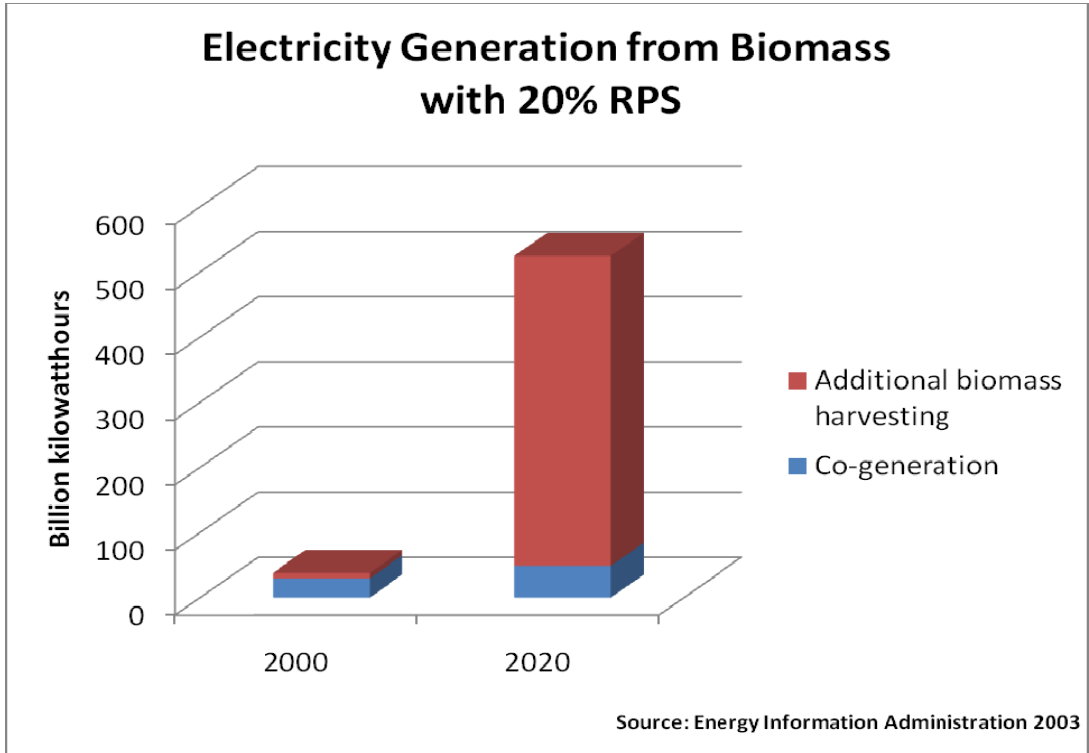
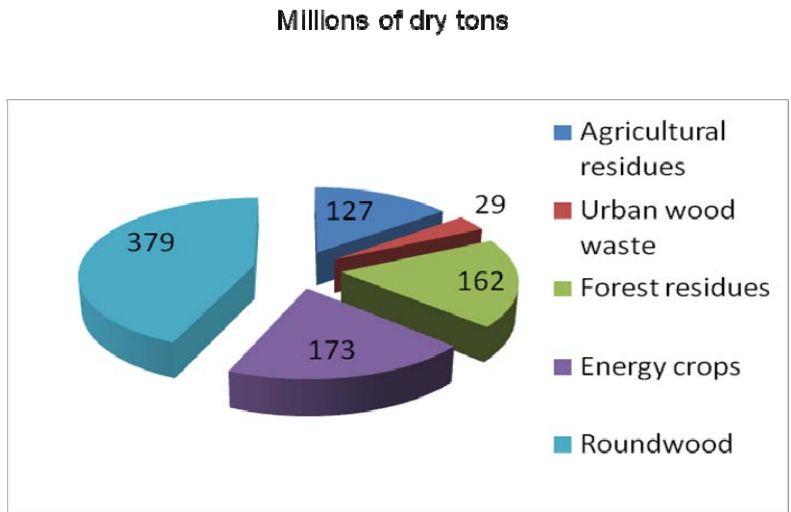


Figure 5. Energy production from biomass and roundwood under a 25 % RFS and RES, 2025



Source: Energy Information Administration, 2007