

# LAND FACTS

## New Rules in Massachusetts Offer Model for Rewarding Good Biomass

Imagine investing in a new power plant or passing a new policy to promote clean, renewable energy only to discover that it was actually dirty and threatened local forests. Massachusetts realized that was happening under the state's Renewable Portfolio Standard (RPS) because regulations failed to distinguish between the good, the bad, and the ugly when it came to biomass. The program was perversely rewarding power companies for burning whole trees and thus undermining efforts to invest in truly low-carbon energy sources like wind, solar, and low-carbon biomass. The Commonwealth chose to end this practice by putting in place smart standards to drive the market towards the best sources of biomass—the first standards in the world to set a performance requirement for biomass. The Natural Resources Defense Council (NRDC) hails Massachusetts' new proposed biomass rules as a blueprint for how other states and the U.S. Environmental Protection Agency (EPA) can ensure that biomass-fueled energy reduces carbon emissions and protects our nation's valuable forests.

### DISTINGUISHING BETWEEN GOOD AND BAD BIOMASS IS KEY TO SMART POLICIES

Power companies argue that because trees can grow back, they are a renewable and “carbon neutral” fuel source. This misconception is embedded in many existing renewable energy policies that promote biomass fuels uniformly for electricity production. However, just like coal, when trees are burned in power plants, the carbon they have accumulated over long periods of time is released into the atmosphere. But unlike coal, burning wood releases far more carbon for every unit of energy produced. In addition, undisturbed forests and their soils would continue to absorb carbon. So burning forests for energy not only emits a lot of carbon, but also degrades our carbon sinks. Taken together, this creates a *carbon debt*—an increase in carbon pollution over the fossil fuel alternative—and forests can take decades to repay this debt, even if they are replanted immediately and managed carefully.

Only biomass that is carefully chosen, grown responsibly, and efficiently converted into energy can reduce carbon pollution and other emissions compared to fossil fuels.

Feedstocks like short-rotation crops, landfill gas, wood waste, reclaimed wood, and timber harvest residues—which include tops and branches—have low net emissions within very short timeframes. Electricity generation fueled by these low-carbon sources of biomass can reduce carbon emissions and represents an appropriate alternative to fossil fuels like coal.

### MASSACHUSETTS' REGULATIONS USE THE BEST SCIENCE AND WILL HELP THE STATE MEET ITS CARBON REDUCTION GOALS

The Massachusetts biomass standards include four main requirements, which together ensure that only the *right* types of biomass fuels—those that reduce carbon pollution—are eligible for credit under the Commonwealth's RPS:<sup>1</sup>

- Restrictions that limit “Eligible Biomass Woody Fuels,” predominantly to timber harvest residues (tops and branches left after a logging operation), instead of whole trees. Because these residues would normally decay on the forest floor and release their carbon very quickly, they represent a good fuel source from a carbon emissions standpoint.



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- A limit on the amount of eligible biomass residues removed from a forest site. This ensures that sufficient woody material is left on the forest floor to replenish soil nutrients and provide wildlife habitat. The rules also include measures to protect old growth forests, critical habitats, and sensitive soils.
- Strict criteria for carbon accounting that ensures the policy actually achieves emissions reductions. This includes a requirement that biomass-fueled power plants conduct lifecycle carbon emissions analyses and demonstrate emissions reductions of at least 50 percent over 20 years.
- A requirement that encourages the most efficient use of eligible biomass: overall efficiency of a biomass generation facility must be 50 percent to qualify for one-half Renewable Energy Credit (known as a REC) per megawatt hour of electricity, with credit increasing linearly to a full credit once overall efficiency hits 60 percent or above.

Allowing all forms of biomass to qualify for state RPS incentives would significantly undermine Massachusetts' goal of reducing the state's greenhouse gas emissions by 10 to 25 percent below 1990 levels by 2020, and 80 percent by 2050.<sup>2</sup> The new rules, however, are consistent with the findings that different forms of biomass fuels have different climate impacts and need to be accounted for accordingly. They require that power plants rely predominantly on low-carbon biomass sources and demonstrate emissions reductions of at least 50 percent over 20 years as compared to natural gas, making it possible for the Commonwealth to meet its emissions reduction targets.

## SMART BIOMASS RULES FOSTER EFFICIENCY AND INNOVATION IN THE POWER SECTOR AND SAVE TAXPAYER DOLLARS

Allowing all forms of biomass, including whole trees, into state RPS programs can also undermine the business environment. It can create a false sense of fuel supply, resulting in overly optimistic business forecasting and unwarranted and misguided levels of investment. These conditions can lead to boom and bust markets, financial uncertainty, and ultimately significant loss in investments and opportunities. A robust RPS that includes smart biomass safeguards will help stabilize energy prices and address climate change while promoting investments in clean energy. The Massachusetts regulations will ensure that investments are directed towards technologies and industries that will prosper in a carbon constrained world, such as wind, solar, and low-carbon biomass power.

## SCIENTISTS AGREE: BURNING TREES FOR ENERGY INCREASES CARBON POLLUTION

Biopower—the burning of biomass to generate electricity in power plants—uses many forms of fuel: fast growing crops like switchgrass; branches and limbs left over from forestry operations; waste from sawmills; whole trees; and urban tree trimmings and wood waste. Some can provide a low-carbon alternative to burning fossil fuels, while others actually increase carbon emissions when compared to coal and natural gas.

In particular, the scientific evidence—as revealed by a landmark study conducted by the Manomet Center for Conservation Sciences—now shows that burning whole trees in power plants creates more carbon pollution than fossil fuels for decades.<sup>3</sup> According to one of the Manomet study's authors, switching to burning whole trees “would be like hitting the GHG *accelerator* on emissions when you really need to be hitting the *brakes*. Our study indicated that the state of Massachusetts couldn't meet its 2020 reductions goal by switching to large-scale electricity generation using wood biomass. In fact, it would actually increase emissions (and total atmospheric carbon) before 2020.”<sup>4</sup>

These results are not unique to Massachusetts or northeastern forests. A recent study conducted in the southeast region of the United States likewise concluded that burning trees in the region's power plants would increase carbon pollution for 35 to 50 years compared to fossil fuels. According to the study, only after this payback period would biopower lower atmospheric carbon.<sup>5</sup>

## THE MASSACHUSETTS REGULATIONS AND THEIR SUPPORTING SCIENCE ARE A NATIONAL MODEL

States like Massachusetts are choosing to follow the science and put in place smart regulations to drive the market towards the best sources of biomass. The Commonwealth's new biomass rules are pivotal to challenging the assumption that all bioenergy is categorically carbon neutral and offer a vitally important model to drive sound policy reforms with power utilities, states, and the EPA. NRDC believes U.S. power utilities should follow suit, ensuring their fuel sourcing policies include rigorous biomass sourcing standards for ecosystem protection and carbon accounting. Other states should likewise follow Massachusetts' lead by requiring minimum greenhouse gas reductions from bioenergy production, protecting their forests from overharvesting for biomass, and setting a minimum efficiency standard for the use of biomass in power plants. Finally, the EPA must ensure that greenhouse gas regulations for large power plants under the Clean Air Act are based on sound science and accurately assess the climate impact of burning biomass.

1 The full Proposed Final Regulation can be found here: <http://www.mass.gov/eea/energy-utilities-clean-tech/renewable-energy/>.

2 Targets set in the 2008 Massachusetts Global Warming Solutions Act.

3 Manomet Center for Conservation Sciences, “Biomass Sustainability and Carbon Policy Study,” prepared for the Commonwealth of Massachusetts Department of Energy Resources, Manomet, Massachusetts, June, 2010.

4 John Hagan, “Biomass Energy: Recalibrated,” Partnerships for Sustainability, Manomet Center for Conservation Sciences, Winter 2012 Issue.

5 Biomass Energy Resource Center, “Biomass Supply and Carbon Accounting for Southeastern Forests,” February 2012. [biomass/renewable-portfolio-standard-biomass-policy.html](http://biomass/renewable-portfolio-standard-biomass-policy.html).