

Biomass Energy: Questions and Answers

What is renewable forest biomass energy?

At its core, renewable forest biomass energy is using material from the forest, including limbs, branches, bark, underbrush, smaller and inferior trees, and wood wastes from manufacturing to produce energy, including power, heat and transportation fuels. It is the original renewable energy, and is presently the largest source of non-hydro renewable energy in the U.S., exceeding wind, solar, and geothermal combined¹. The forest products industry uses wood waste from the manufacturing process to meet 65% of its power needs¹. The future holds the promise of using forest biomass as a renewable, domestic source of energy that can decrease our dependence on foreign oil.

Why is biomass energy beneficial to the atmosphere?

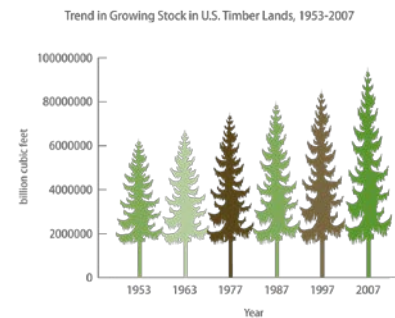
According to the U.S. Environmental Protection Agency (EPA), biomass energy does not increase carbon in the atmosphere when it is used sustainably². Increasing levels of carbon in the atmosphere is a concern because of climate change. One of the chief sources of increasing carbon in the atmosphere is fossil fuel combustion (anthropogenic carbon). This carbon is released from storage deep in the Earth and is reintroduced into the natural carbon cycle, where it accumulates. Carbon from the combustion of biomass (biogenic carbon) is part of the natural carbon cycle. Rather than accumulating, it is recycled through the atmosphere as carbon is absorbed by growing plants and trees, released through combustion and other uses, and then reabsorbed when plants and trees grow back.



Eventually, carbon dioxide and other greenhouse gases stored in plants and trees is released to the atmosphere through decomposition, wildfires, prescribed fires, or the burning of logging debris. Using biomass for energy captures the energy potential of this biomass as it moves through the natural carbon cycle.

Why is the use of renewable forest biomass for energy sustainable in the U.S.?

The U.S. has an extensive framework of laws, regulations, policies, and voluntary agreements that work together to ensure the sustainable management of our forests. Consequently, the U.S. leads the world in conserving working forests. Using modern forest practices the U.S. has met an increasing demand for forest products used by millions of Americans every day while at the same time retaining the same total acres of forest today that existed 100 years ago. Over the last 50 years modern forestry has increased tree growth in the U.S. by 49 percent³ as forest owners in the U.S. consistently grow more trees than they harvest. Forest owners plant over 3.5 million trees in the U.S. every day.



Source: USDA Forest Service, U.S. Forests Resource Facts and Historical Trends, Sep 2009, <http://fs.fed.us/library/brochures/docs/Forest%20Facts%201952-2007%20English.pdf>.

Using forest biomass for new renewable energy markets will help conserve forestland. Today the greatest threat of deforestation comes from the conversion of forests to non-forest uses that have a higher economic value. The families, businesses and individuals that own 57% of our nation's forests³ depend on the returns they get from the products their forests produce to make additional investments in sound, long-term forest management. When existing markets for their products are strong, or when new markets like energy emerge, they provide forest owners the means to keep their land forested by investing in tree planting and forest health treatments⁴ and by keeping their forests economically competitive with other uses. More information is available at <http://nafoalliance.org/environmental-regulation-of-private-forests/>.

Why do we need energy from forest biomass in addition to other renewable sources, such as wind and solar power?

The U.S. requires a broad mix of energy sources to meet its energy demands. Renewable energy is important to the long-term sustainability of our energy supplies and decreasing our reliance on foreign energy sources. The most important power sources are those that can produce electricity when it is needed (baseload) since electricity cannot be stored on a large scale. Traditional baseload energy sources include coal, natural gas, and nuclear. Biomass energy is a reliable, renewable baseload power source. Additionally, energy resources vary by region. Areas of the U.S. that are abundant in forest resources often are not practical for wind and solar generation. Biomass is a necessity for these regions to meet renewable energy goals.

Why won't whole forests or large trees be harvested for bioenergy?

The economics of forestry favors the growth of large trees to produce high value products, like lumber for homes or furniture. Energy production is one of the lowest value uses of forest biomass. Because of this, forest owners will continue to grow forests for long periods to produce large trees. Forest owners will use smaller and inferior trees thinned from the forest to benefit larger trees along with tree limbs, tops and other debris from logging for energy production. Forest owners can also manage their forests to produce more biomass and larger trees over time. Market history and recent studies show that forest owners can sustainably increase biomass from their forests by as much as 150% on planted forests and 75% on naturally growing forests as the market demand for biomass increases⁵.

Even with this potential, biomass facilities in the U.S. will only be built as economic and other conditions, such as securing necessary permits and enough wood to operate sustainably, will allow. Credible market analysis shows that only 52% of all the new biomass energy projects announced in 2010 are expected to be online by 2020⁶. This will create a gradual build-up in the demand of forest biomass for energy rather than a sudden spike that could create short-term biomass shortages. More information is available at <http://nafoalliance.org/assurance-of-long-term-sustainable-biomass-energy/>.

Visit www.nafoalliance.org/renewable for more information on renewable forest biomass.

¹ American Forest and Paper Association. From the Internet at <http://afandpa.org/RenewableEnergy.aspx> on January 20, 2010.

² U. S. Environmental Protection Agency Combined Heat and Power Partnership. Biomass Combined Heat and Power Catalog of Technologies. 96. September 2007. www.epa.gov/chp/documents/biomass_chp_catalog.pdf.

³ Society of American Foresters. State of America's Forests. 2007. <http://www.safnet.org/publications/americanforests/index.cfm>

⁴ Ecological Implications of Biomass Policies for Private Forests in the United States. Dr. Alan Lucier. National Council for Air and Stream Improvement. April 2010. www.nafoalliance.org/biomass-ecological-sustainability.

⁵ A Developing Bioenergy Market and its Implications on Forests and Forest Products Markets in the United States: Economic Considerations. Clutter, Abt, Greene, and Siry. National Alliance of Forest Owners. April 2010. www.nafoalliance.org/clutter.

⁶ A Practical Guide for Tracking Wood-Using Bioenergy Markets. Brooks Mendell and Amanda Hamsley Lang. Forisk Consulting. March 2010. www.nafoalliance.org/forisk.